

\*466IHSSF1060\*



DocumentID NONCD0002848

Site Name LOXCREEN

DocumentType Correspondence (C)

RptSegment 1

DocDate 10/11/1994

DocRcvd 2/20/2007

Box SF1060

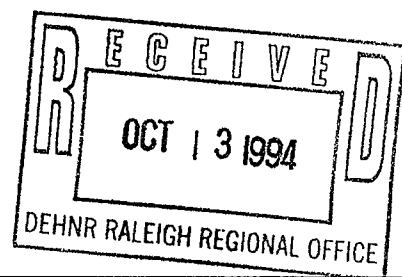
AccessLevel PUBLIC

Division WASTE MANAGEMENT

Section SUPERFUND

Program IHS (IHS)

DocCat FACILITY



Raleigh, NC  
919-876-5115  
Charlotte, NC  
704-527-5115

October 11, 1994

Mr. Ken Schuster  
Regional Supervisor  
Raleigh Regional Office  
North Carolina Department of Environment, Health  
and Natural Resources  
Post Office Box 27687  
Raleigh, North Carolina 27611-7687

Dear Mr. Schuster:

Please find attached laboratory results from the most recent monitoring of the groundwater monitoring wells at the Loxcreen facility in Roxboro. The wells monitored were installed to measure the impact of the leak through the floor of the Brite Dip Area. These results still show compliance with 2L Water Quality Standards.

Since our last progress report considerable effort has gone into correcting problems at Loxcreen. A detailed structural analysis of the building was done by Triangle Environmental, Inc. with the assistance of Dr. Roy Borden of North Carolina State University. This analysis revealed that repair of the existing building was possible, and that some interim measures could be taken to reduce further impact on the groundwater. Based on the data gathered, lime in both powder and slurry form was used to neutralize acidic wastewater under the building. Holes in the floor were filled with grout and sealed, and additional piping has been installed to reduce dumps of strong wastes and rinse waters onto the floor. The result has been a greatly reduced potential for discharges to the groundwaters.

In addition, plans were drawn for rebuilding the floor in the Brite Dip and Anodizing Area. Because of the structural concerns related to the building and the time that the company would be unable to operate during construction, the decision was made to defer replacement of the floor and consider building a new building to house the Brite Drip operation. For your information, the repair cost for the Brite Dip floor was estimated to be over \$500,000.

Loxcreen corporate officers are presently considering plans for a new manufacturing building on the Roxboro site and will make a decision regarding new construction versus repair of the existing facility as soon as adequate data is available. In the interim, monitoring of the existing wells will continue to document the fact that groundwater

standards are being maintained. If monitoring reveals that groundwater standards are not being maintained, appropriate action will be taken.

Please give me a call if you have any questions or need any additional information about what has been done to date in this matter.

Sincerely,

**TRIANGLE ENVIRONMENTAL, INC.**

A handwritten signature in black ink, appearing to read 'R. Stan Taylor'.

R. Stan Taylor, PE  
Vice President

/ra

xc: Mr. Ron Rhymer  
Mr. Tom Hatchell

## REPORT OF ANALYSES

TRIANGLE ENVIRONMENTAL  
P.O. BOX 41087  
RALEIGH, NC 27629-

PROJECT NAME: 943498  
DATE: 09/26/94

(Page 1 of 1)

SAMPLE				DELIVERY TO LAB	
LAB No.	DATE	TIME	SAMPLER	DATE	TIME MATRIX
40935	09/19/94	1409	MILTON WOOD	09/19/94	1645 WA
40936	09/19/94	1415	MILTON WOOD	09/19/94	1645 WA

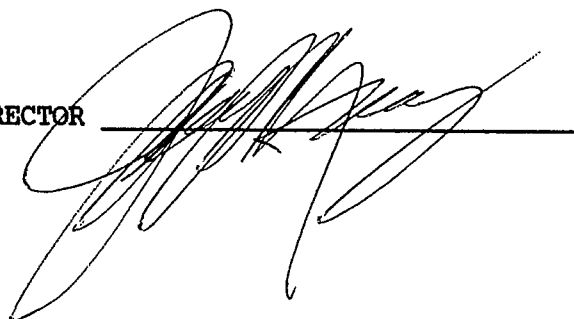
CLIENT STATION ID:		BDMW-1	LOXMW-1
LAB #:		40935	40936

NITRITE	mg/l	<0.10	<0.10
NITRATE	mg/l	9.30	0.61
SURFACTANTS	mg/L	0.17	0.14

MBAS WERE ANALYZED AT HYDROLOGIC ASHEVILLE.

LABORATORY DIRECTOR





H Y D R O L O G I C , I N C .

FINAL REPORT OF ANALYSES

HYDROLOGIC MORRISVILLE  
2500 GATEWAY CENTRE BOULV  
SUITE 900  
MORRISVILLE, NC 27560-  
Attn: LISA SNIPES

PROJECT NAME: 943498 TRIANGLE  
REPORT DATE: 09/23/94

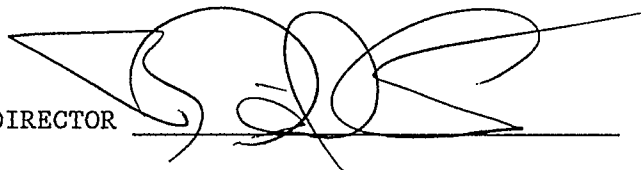
SAMPLE NUMBER- 49767 SAMPLE ID- BDMW-1  
DATE SAMPLED- 09/19/94 LOCATION- LOT 25R  
DATE RECEIVED- 09/20/94 SAMPLER- MILTON  
TIME RECEIVED- 1100 DELIVERED BY- FEDEX

SAMPLE MATRIX- WW  
TIME SAMPLED- 1409  
RECEIVED BY- PLB

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT UNITS	DET. LIMIT
MBAS	EPA 425.1	09/21/94	APT	0.17 mg/l	0.10

LABORATORY DIRECTOR



# H Y D R O L O G I C , I N C .

## FINAL REPORT OF ANALYSES

HYDROLOGIC MORRISVILLE  
2500 GATEWAY CENTRE BOULV  
SUITE 900  
MORRISVILLE, NC 27560-  
Attn: LISA SNIPES

PROJECT NAME: 943498 TRIANGLE  
REPORT DATE: 09/23/94

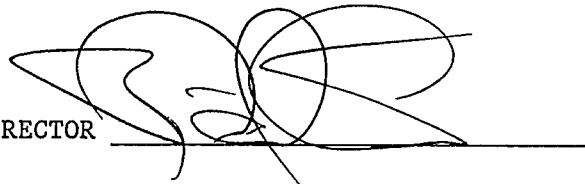
SAMPLE NUMBER- 49768 SAMPLE ID- LOT MW-1  
DATE SAMPLED- 09/19/94 LOCATION- LOT 25R  
DATE RECEIVED- 09/20/94 SAMPLER- MILTON  
TIME RECEIVED- 1100 DELIVERED BY- FEDEX

SAMPLE MATRIX- WW  
TIME SAMPLED- 1415  
RECEIVED BY- PLB

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT UNITS	DET. LIMIT
MBAS	EPA 425.1	09/21/94	APT	0.14 mg/l	0.10

LABORATORY DIRECTOR



Subcontractor: <u>121-1234</u>	SUBCONTRACT COC	Report/Invoice To:
Contact Name: <u>DAVID</u>	Project Name: <u>TRIANGLE</u>	HydroLogic, Inc.
Date Shipped: <u>9-19-94</u>	Project Number: <u>943498</u>	2500 Gateway Centre
Comments: _____	Contact: <u>LOX-25R</u>	Suite 900
	P.O. #: _____	Morrisville, NC 27560
		919-380-9699
		800-241-4174
		919-380-9717 (Fax)

SAMPLE TYPE

[illegible]

REPORT TO:

DERRICK BELLTRIANGLE ENVPO Box 4037RALEIGH, NC 27619

## CHAIN OF CUSTODY

HydroLogic, Inc.

2500 Gateway Centre Blvd., Suite 900

Morrisville, NC 27560

800-241-4174

919-380-9699

PO #

1228

PAGE

1

OF

1

943498

CLIENT: <u>TRIANGLE / LOX.25R</u>				ANALYSES								PROJECT ID #:			
PHONE: <u>876-5115</u>				MBAS	Nitrate	Nitrite							REPORT DUE:		
PROJ #: <u>Lox.25R</u>		PO #: <u>1228</u>											VERBAL	FAX COPY	HARD COPY
SAMPLER: <u>MILTON WOOD</u>															
FIELD ID	SAMPLE MATRIX	TIME COLLECTED	DATE COLLECTED										REMARKS		
<u>BDMW-1</u>	<u>GW</u>	<u>14:09</u>	<u>9/19/94</u>	✓	✓	✓							→ Report Nitrate & Nitrite separately		
<u>LOXNW-1</u>	<u>"</u>	<u>14:15</u>	<u>"</u>	✓	✓	✓							Thanks.		
													mbas-DJB		
RELINQUISHED BY: <u>Richard Baumgartner</u>				DATE / TIME: <u>9-19-94 16:45</u>				RECEIVED BY: <u>J. Stipe</u>				DATE / TIME: <u>9-19-94 1645</u>			
RELINQUISHED BY: <u>J. Stipe</u>				DATE / TIME: <u>9-19-94 1800</u>				RECEIVED BY:				DATE / TIME:			
RELINQUISHED BY:				DATE / TIME:				RECEIVED BY:				DATE / TIME:			
DISPATCHED BY:				DATE / TIME:				RECEIVED BY:				DATE / TIME:			

☒ REC'D ON ICE☐ PRESERVEDby: J. Stipe

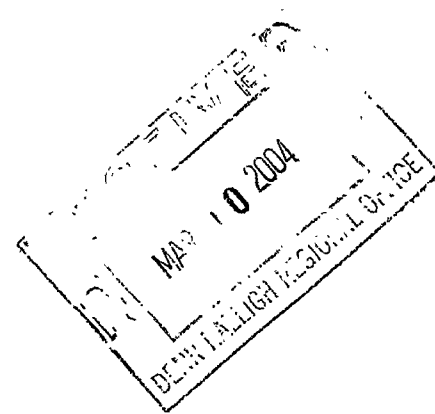


**SHERRILL ENVIRONMENTAL, INC.**  
Environmental and Geologic Services

March 10, 2004

Mr. Jay Zimmerman  
NCDENR  
DWQ-Groundwater Section, Raleigh Regional Office  
1628 Mail Service Center  
Raleigh, NC 27699-1628

Subject: Incident # 9642  
Free Product – Rolling Mill Oil  
ALSCO (formerly Owens Corning)  
Roxboro, North Carolina



Dear Mr. Zimmerman:

On March 1, 2004, Sherrill Environmental, Inc. (Sherrill) performed routine compliance groundwater monitoring for nitrate at The Loxcreen Company (Loxcreen), Roxboro, North Carolina facility. An oil sheen was present on the groundwater purged from monitoring well BDMW-5B, as observed during previous sampling events. This information indicated that the “rolling mill oil” continues to be present in the groundwater at the Loxcreen facility.

On behalf of Loxcreen, Sherrill is respectfully requesting to be updated with the progress to remediate and contain the rolling mill oil release that occurred at the former Owens Corning facility. Has a Corrective Action Plan (CAP) been submitted for this incident? Are corrective measures being implemented?

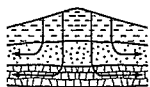
Loxcreen operates an onsite water well to provide water for their manufacturing process. If the rolling mill oil migrates to the industrial well, the water could be rendered unsuitable for manufacturing purposes. Loxcreen wishes to cooperate with the NCDENR Groundwater Section in progressing forward on this concern. Please contact us at (919) 420-7822 or Mr. Charles Dix of Loxcreen at (336) 599-9261, if you have any questions or need additional information.

Sincerely,

**Sherrill Environmental, Inc.**

John (Jack) Sherrill, L.G.

cc: Mr. Charles Dix, Plant Engineer, The Loxcreen Company, Inc.



**Sherrill Environmental, Inc.**  
Environmental and Geologic Services

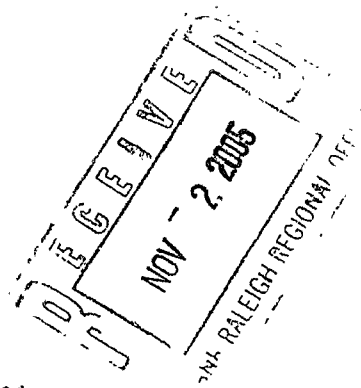
October 31, 2005

Mr. Jay Zimmerman  
NCDENR  
DWQ-Groundwater Section, Raleigh Regional Office  
1628 Mail Service Center  
Raleigh, NC 27699-1628

Subject: Semiannual Monitoring for Nitrate  
September 19, 2005  
Incident No. 9179 (Shared)  
The Loxcreen Company  
Roxboro, North Carolina

11673

LOXCREEN INC.  
NO.



Dear Mr. Zimmerman:

Person County 417 1/10/06

Sherrill Environmental, Inc. (Sherrill), on behalf of The Loxcreen Company (Loxcreen), conducted semiannual groundwater monitoring on September 19, 2005, at the Roxboro, North Carolina facility (Figure 1). Groundwater samples were collected from six monitoring wells and three recovery wells (Figure 2). The nine groundwater samples were analyzed for nitrate.

### Field Activities

Groundwater sampling was performed by Sherrill personnel on September 19, 2005. Activities were initiated by unlocking and opening the monitoring wells to allow the groundwater levels to equilibrate with atmospheric pressure. The depth to water was measured in each monitoring well with an electronic water level indicator (Table 1). Water levels were not measured in the recovery wells. Well volumes were calculated, and each well was purged a minimum of three volumes. Purging and sampling were performed with a new disposable polyethylene bailer for each monitoring well. Groundwater samples were collected from the recovery wells at each well's discharge sampling port. All samples were collected in laboratory-supplied glassware, placed in an ice-filled cooler, and transferred to a laboratory certified by NCDENR using standard, chain-of-custody procedures.

### Data Analysis

A potentiometric surface map was generated using the groundwater level measurements obtained on September 19, 2005 (Figure 3). The data suggest a significant radius of influence for recovery wells BDRW-1, BDRW-2, and RW-1. The recovery wells appear to be controlling the migration of the nitrate contaminant plume.

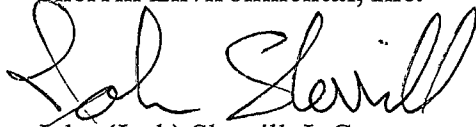
The nitrate analysis of the groundwater samples collected on September 19, 2005 is summarized on Table 2, and the laboratory report is attached. The groundwater samples contained nitrate (NO<sub>3</sub>) in concentrations that ranged from less than the detection limit of 0.1 mg/L to 152 mg/L. Four of the nine groundwater samples contained concentrations of nitrate above the NCAC 2L Standard of 10 mg/L (Figure 4). The groundwater sample from MW-5 had the highest concentration of nitrate at 152 mg/L. The groundwater samples from recovery wells BDRW-1 and BDRW-2 had concentrations of nitrate at 26 mg/L and 51 mg/L, respectively.

In summary, the groundwater plume of nitrate contamination appears to be limited to onsite. Only two of the six monitoring wells had a groundwater sample with nitrate concentrations above the NCAC 2L Standard. The recovery wells appear to be controlling the migration of the plume. The recovery wells are functioning to clean the site as the nitrate concentrations in the water being removed is above the NCAC 2L Standard.

The next monitoring event for nitrate is scheduled for March 2006. Please contact us at (919) 493-6555 or Mr. Charles Dix of Loxcreen at (336) 599-9261, if you have any questions or need additional information.

Sincerely,

Sherrill Environmental, Inc.

  
John (Jack) Sherrill, L.G.



CC: Mr. Charles Dix, Plant Engineer, The Loxcreen Company, Inc.  
Mr. Brent Theiling, Engineering Manager, The Loxcreen Company, Inc.

**TABLE 1**  
**GROUNDWATER TABLE MEASUREMENTS**  
**LOXCREEN COMPANY, ROXBORO, NC**

Page 1 of 2

**Sherrill Environmental, Inc.**

	TOC	3/29/1999		9/14/1999		3/20/2000		9/11/2000		3/12/2001		9/17/2001	
	Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.
BDMW-2	97.34	14.63	82.71	19.44	77.90	17.60	79.74	15.70	81.64	15.02	82.32	14.22	83.12
BDMW-3	97.56	20.37	77.19	22.65	74.91	18.98	78.58	20.72	76.84	16.97	80.59	20.02	77.54
BDMW-4	97.96	38.12	59.84	40.54	57.42	35.72	62.24	36.58	61.38	35.17	62.79	40.08	57.88
BDMW-5	96.85	19.86	76.99	24.93	71.92	NM		NM		NM		NM	
BDMW-5B	96.65					20.07	76.58	24.23	72.42	19.03	77.62	21.87	74.78
MW-1	98.07	NM		20.51	77.56	NM		NM		NM		NM	
MW-4	97.76	27.52	70.24	30.54	67.22	29.24	68.52	30.23	67.53	28.72	69.04	30.32	67.44
MW-5	97.45	18.87	78.58	25.47	71.98	22.50	74.95	24.93	72.52	22.98	74.47	23.01	74.44
MW-6	104.36							30.77	73.59	NM		30.40	73.96
AM-1	94.47	15.34	79.13	21.90	72.57	19.05	75.42	NM		NM		NM	
AM-6	88.24	5.14	83.10	9.48	78.76	NM		6.14	82.10	NM		NM	
AMW-8	92.89					10.32	82.57	NM		NM		NM	
BDRW-1	97.24	NM		NM		NM		NM		NM		NM	
BDRW-2	95.73	NM		NM		NM		NM		NM		NM	
RW-1	97.41	NM		NM		NM		NM		NM		NM	

Elevations are relative to a site benchmark assigned an elevation of 100 feet.

TOC = Top of casing

Depth = Depth to groundwater from TOC

NM = Not Measured

All measurements are in feet.

GW-DatTbl-05.xlsGW-EL-05



**TABLE 1**  
**GROUNDWATER TABLE MEASUREMENTS**  
**LOXCREEN COMPANY, ROXBORO, NC**

	TOC	3/11/2002		9/23/2002		3/10/2003		9/8/2003		3/1/2004		9/13/2004		3/7/2005		9/19/2005	
	Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.
BDMW-2	97.34	14.93	82.41	16.61	80.73	11.09	86.25	10.05	87.29	8.87	88.47	9.35	87.99	8.84	88.50	9.66	87.68
BDMW-3	97.56	17.67	79.89	20.92	76.64	12.96	84.60	11.93	85.63	9.51	88.05	12.01	85.55	9.08	88.48	12.70	84.86
BDMW-4	97.96	37.78	60.18	39.57	58.39	32.24	65.72	28.53	69.43	28.34	69.62	29.20	68.76	26.58	71.38	29.13	68.83
BDMW-5	96.85	NM		NM		NM		NM		NM		NM		NM		NM	
BDMW-5B	96.65	18.11	78.54	23.18	73.47	12.85	83.80	11.82	84.83	10.35	86.30	10.91	85.74	9.34	87.31	11.30	85.35
MW-1	98.07	NM		NM		NM		NM		NM		NM		NM		NM	
MW-4	97.76	29.36	68.40	30.47	67.29	25.88	71.88	22.31	75.45	21.93	75.83	22.21	75.55	20.03	77.73	23.07	74.69
MW-5	97.45	22.31	75.14	25.21	72.24	17.33	80.12	15.02	82.43	14.05	83.40	13.98	83.47	13.02	84.43	13.45	84.00
MW-6	104.36	23.34	81.02	28.76	75.60	15.38	88.98	14.53	89.83	12.64	91.72	14.66	89.70	11.71	92.65	16.10	88.26
AM-1	94.47	NM		NM		NM		NM		NM		NM		NM		NM	
AM-6	88.24	NM		NM		NM		NM		NM		NM		NM		NM	
AMW-8	92.89	NM		NM		NM		NM		NM		NM		NM		NM	
BDRW-1	97.24	NM		NM		NM		NM		NM		NM		NM		NM	
BDRW-2	95.73	NM		NM		NM		NM		NM		NM		NM		NM	
RW-1	97.41	NM		NM		NM		NM		NM		NM		NM		NM	

Elevations are relative to a site benchmark assigned an elevation of 100 feet.

TOC = Top of casing

Depth = Depth to groundwater from TOC

NM = Not Measured

All measurements are in feet.

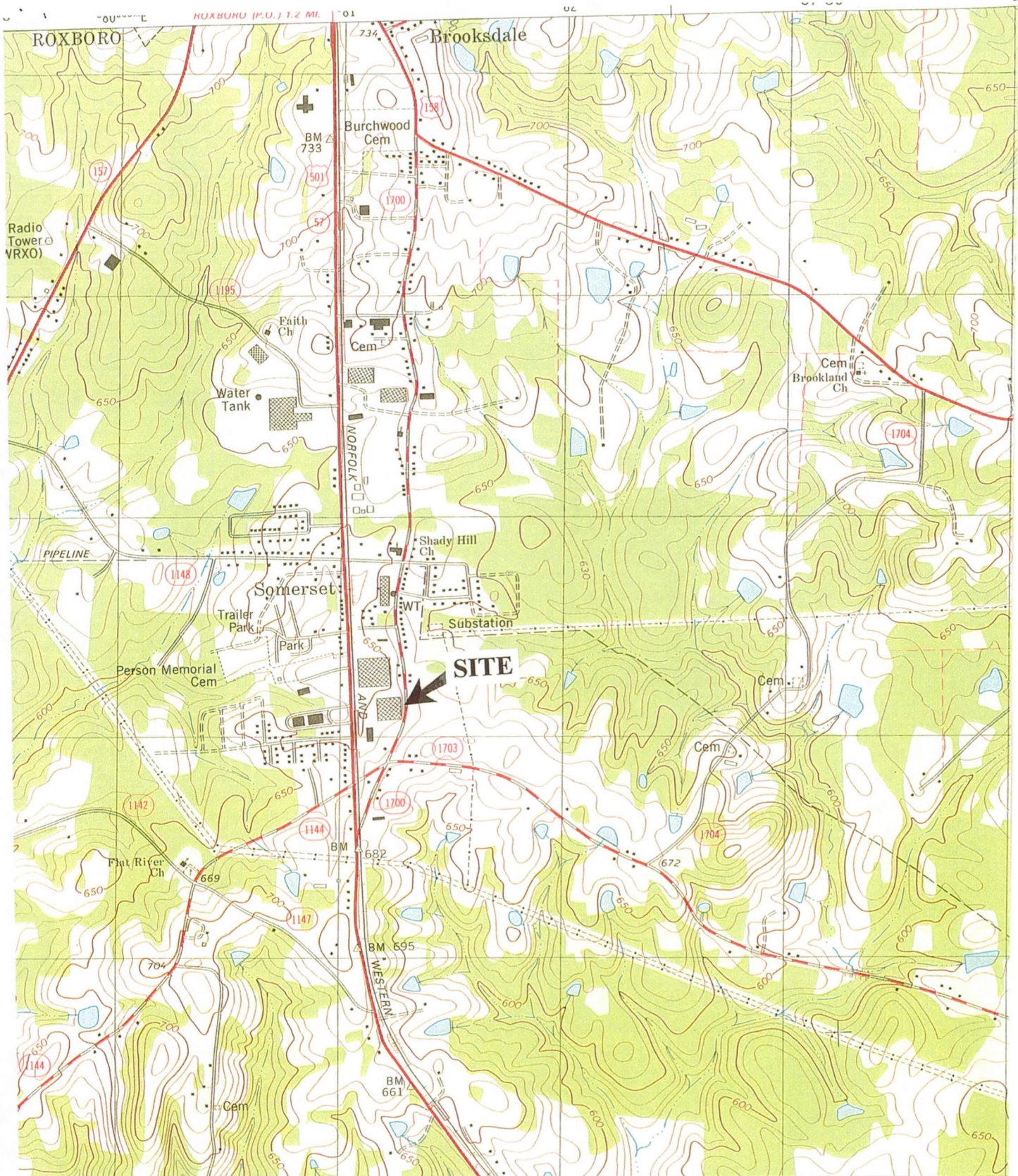
TABLE 2  
GROUNDWATER ANALYSES  
LOXCREEN COMPANY

Sherrill Environmental, Inc.

	Mar-96	Sep-96	Mar-97	Mar-98	Sep-98	Mar-99	Sep-99	Mar-00	Sep-00	Mar-01	Sep-01	Mar-02	Sep-02	Mar-03	Sep-03	Mar-04	Sep-04	Mar-05	Sep-05
	Nitrate Concentrations in mg/L																		
BDMW-2			0.11	5.9	<0.4	<0.02	<0.02	0.38	<0.02	<0.02	<0.02	0.02	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
BDMW-3			NS	NS	NS	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
BDMW-4	11.9	1.8	6.7	13.0	2.6	9.4	12	8.4	4.8	0.48	15	6	33	7.1	6.9	8	6.7	8.9	6.9
BDMW-5			NS	NS	11	<0.02	<0.02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BDMW-5B								1.3	0.81	5.3	0.14	3.2	<0.1	12	11	12	6.8	60	8.5
MW-4	12.2	11.7	3.4	15.7	4.6	7.9	5.3	8.8	2.5	8.3	3.3	10	3.4	8.7	7.2	6.7	12	9.3	17.6
MW-5	17.5	137	187	18.6	240	460	360	520	400	430	520	450	240	1,100	210	190	200	120	152
AMW-1	1.4	0.2	1.1	1.7	3.2	1.8	1.5	2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AMW-6	5.5	1.4	5.6	3.2	3.4	1.7	NS	NS	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AMW-8								<0.02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BDRW-1		21.5	10.2	18.6	33	160	35	25	26	27	38	27	52	12	23	21	25	25	26
BDRW-2		22	16	<0.1	93	26	26	37	38	26	56	55	79	47	54	48	60	42	51
RW-1			0.5	0.6	0.5	0.26	0.25	0.37	0.37	0.27	0.33	0.66	0.38	0.64	NS	0.62	0.82	0.70	0.79

Bold values are above the 10 mg/L NCAC 2L Standard listed for Nitrate.





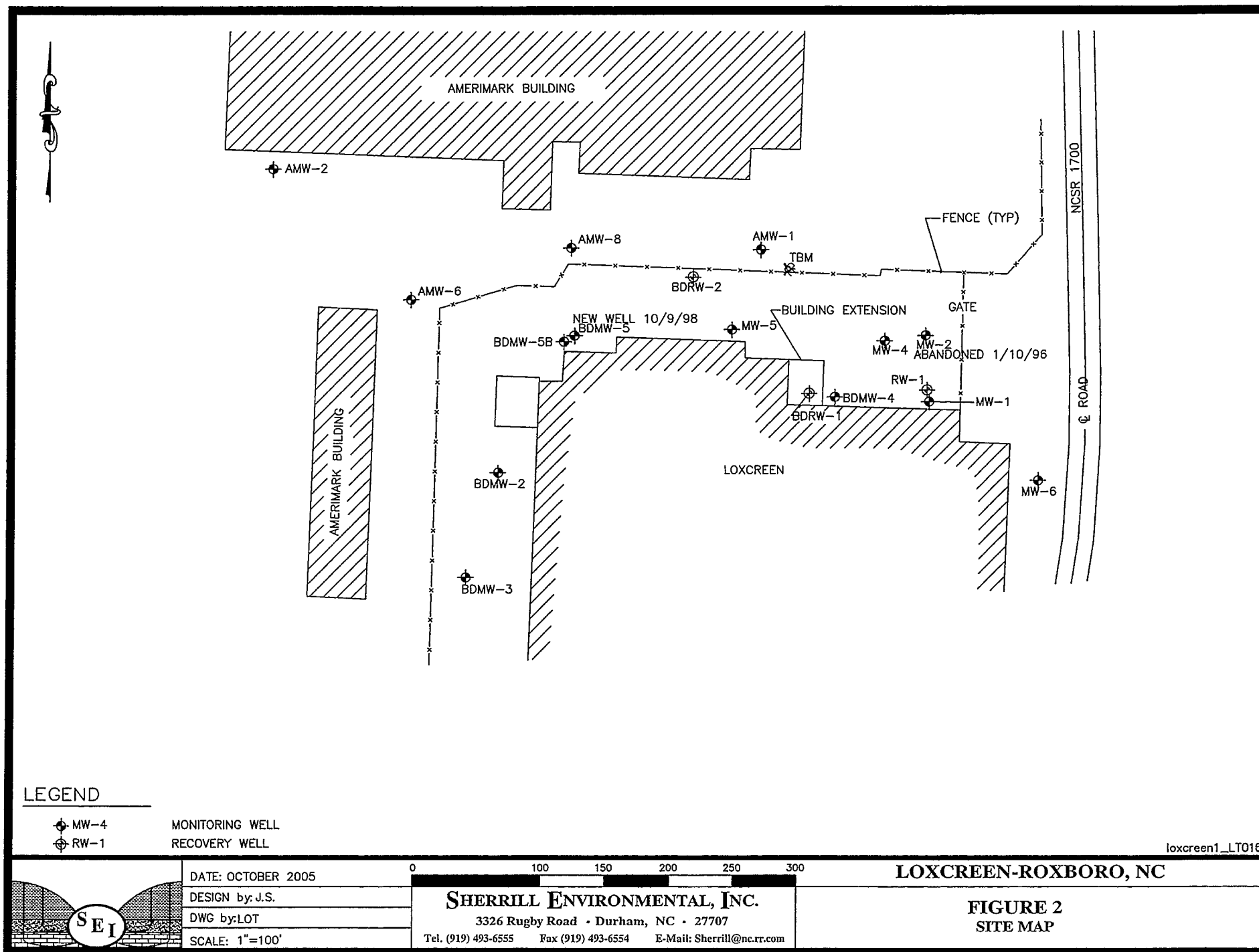
SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET

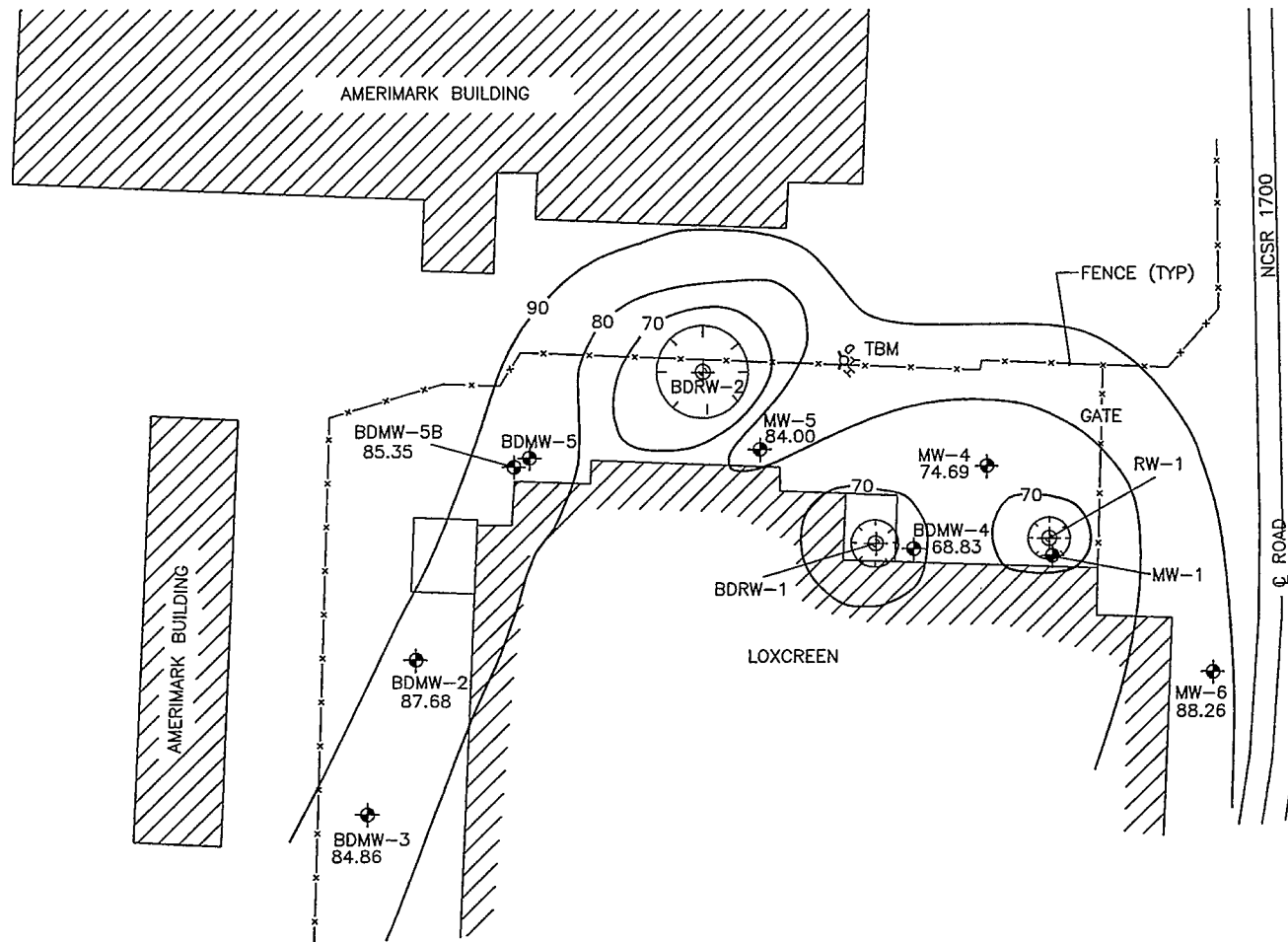
**Sherrill Environmental, Inc.**  
Environmental and Geologic Services  
RALEIGH, NORTH CAROLINA

SITE LOCATION MAP  
THE LOXGREEN COMPANY  
ROXBORO, NORTH CAROLINA

DATE: MAY 1999 FIGURE: 1







#### LEGEND



MONITORING WELL  
RECOVERY WELL

**NOTE:**  
ELEVATIONS ARE RELATIVE TO A SITE BENCHMARK  
ASSIGNED AN ELEVATION.

loxcreen1\_LT014



DATE: OCTOBER 2005

DESIGN by: J.S.

DWG by: LOT

SCALE: 1"=100'

0 100 150 200 250 300

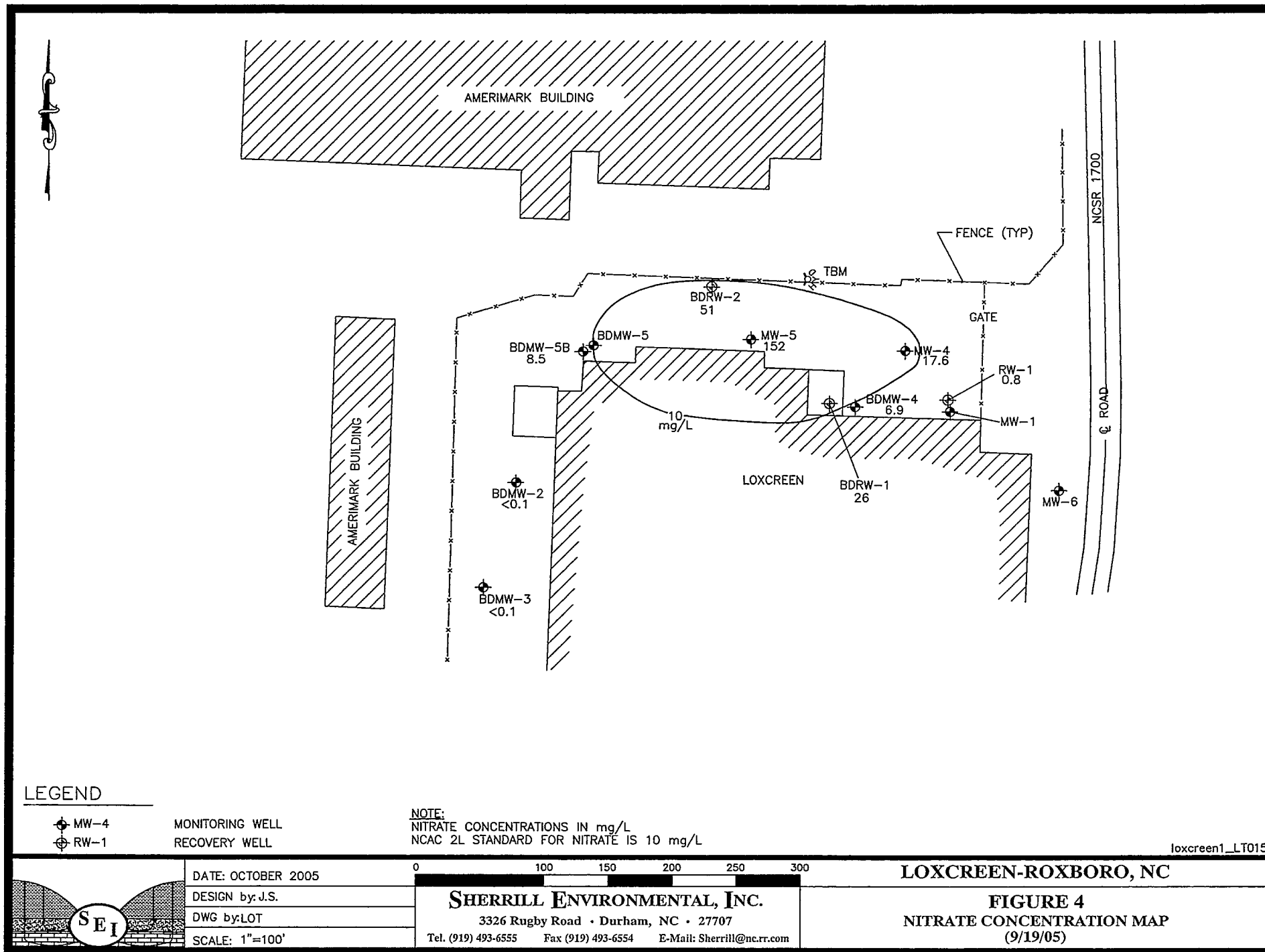
**SHERRILL ENVIRONMENTAL, INC.**

3326 Rugby Road • Durham, NC • 27707

Tel. (919) 493-6555 Fax (919) 493-6554 E-Mail: Sherrill@nc.rr.com

**LOXCREEN-ROXBORO, NC**

**FIGURE 3**  
**POTENTIOMETRIC SURFACE MAP**  
(9/19/05)



Environmental Conservation Laboratories, Inc.  
1015 Passport Way  
Cary, North Carolina 27513-2042  
919 / 677-1669  
Fax 919 / 677-9846  
www.encolabs.com



DHRS Certification No. E82277

CLIENT : Sherrill Environmental, Inc.  
ADDRESS: 3326 Rugby Road  
Durham, NC 27707

REPORT # : CRY18717  
DATE SUBMITTED: September 19, 2005  
DATE REPORTED : September 26, 2005

PAGE 1 OF 6

ATTENTION: Mr. Jack Sherrill

#### SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

REFERENCE: LOXCREEN COMPANY

Loxcreen Company

09/19/05

CRY18717-1	:	BDMW-2	@	12:45
CRY18717-2	:	BDMW-3	@	13:13
CRY18717-3	:	BDMW-4	@	10:30
CRY18717-4	:	BDMW-5B	@	12:00
CRY18717-5	:	MW-4	@	09:30
CRY18717-6	:	MW-5	@	11:30
CRY18717-7	:	BDRW-1	@	13:30
CRY18717-9	:	RW-1	@	13:20

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. This data has been produced in accordance with NELAC Standards (June, 2003). This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

PROJECT MANAGER

A handwritten signature in black ink, appearing to read "Chuck Smith", written over a horizontal line.

Chuck Smith

## ENCO LABORATORIES

REPORT # : CRY18717

DATE REPORTED: September 26, 2005

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 2 OF 6

## RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDMW-2</u>	<u>BDMW-3</u>	<u>Units</u>
Nitrate-N	0.10 U	0.10 U	mg/L
Date Analyzed	09/20/05 17:00	09/20/05 17:20	

EPA METHOD 300 -  
Anions by IC

	<u>BDMW-4</u>	<u>BDMW-5B</u>	<u>Units</u>
Nitrate-N	6.9	8.5	mg/L
Date Analyzed	09/20/05 19:40	09/20/05 20:00	

EPA METHOD 300 -  
Anions by IC

	<u>MW-4</u>	<u>MW-5</u>	<u>Units</u>
Nitrate-N	17.6	152.	mg/L
Date Analyzed	09/20/05 20:20	09/20/05 20:40	

U = Compound was analyzed for but not detected to the level shown.



## ENCO LABORATORIES

REPORT # : CRY18717

DATE REPORTED: September 26, 2005

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 3 OF 6

## RESULTS OF ANALYSIS

EPA METHOD 624 -  
VOLATILE ORGANICS

	<u>BDRW-1</u>	<u>RW-1</u>	<u>Units</u>
Methyl tert-butyl ether	NR	1. U	ug/L
Benzene	NR	1. U	ug/L
Toluene	NR	1. U	ug/L
Chlorobenzene	NR	1. U	ug/L
Ethylbenzene	NR	1. U	ug/L
m-Xylene & p-Xylene	NR	2. U	ug/L
o-Xylene	NR	1. U	ug/L
1,3-Dichlorobenzene	NR	1. U	ug/L
1,4-Dichlorobenzene	NR	1. U	ug/L
1,2-Dichlorobenzene	NR	1. U	ug/L
Isopropyl Ether	NR	1. U	ug/L

Surrogate:

	<u>% RECOV</u>	<u>LIMITS</u>
Dibromofluoromethane	130	73-138
D8-Toluene	98	77-118
Bromofluorobenzene	122	70-130
Date Analyzed	09/20/05 13:41	

EPA METHOD 300 -  
Anions by IC

	<u>BDRW-1</u>	<u>RW-1</u>	<u>Units</u>
Nitrate-N	26.2	0.79	mg/L
Date Analyzed	09/20/05 21:00	09/20/05 19:20	

NR = Analysis not requested for this sample.

U = Compound was analyzed for but not detected to the level shown.

## ENCO LABORATORIES

REPORT # : CRY18717

DATE REPORTED: September 26, 2005

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 4 OF 6

## RESULTS OF ANALYSIS

EPA METHOD 624 -  
VOLATILE ORGANICS

	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	1. U	ug/L
Benzene	1. U	ug/L
Toluene	1. U	ug/L
Chlorobenzene	1. U	ug/L
Ethylbenzene	1. U	ug/L
m-Xylene & p-Xylene	2. U	ug/L
o-Xylene	1. U	ug/L
1,3-Dichlorobenzene	1. U	ug/L
1,4-Dichlorobenzene	1. U	ug/L
1,2-Dichlorobenzene	1. U	ug/L
Isopropyl Ether	1. U	ug/L

Surrogate:

	<u>% RECOV</u>	<u>LIMITS</u>
Dibromofluoromethane	111	73-138
D8-Toluene	96	77-118
Bromofluorobenzene	97	70-130
Date Analyzed	09/20/05 08:26	

EPA METHOD 300 -  
Anions by IC

	<u>LAB BLANK</u>	<u>Units</u>
Nitrate-N	0.10 U	mg/L
Date Analyzed	09/20/05 16:11	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY18717

DATE REPORTED: September 26, 2005

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 5 OF 6

LABORATORY CERTIFICATIONS

Laboratory Certification: NCDENR:591

All analyses reported with this project were analyzed by the facility indicated unless identified below.

PARAMETER

Nitrate, EPA Method 300

LAB CERT #'s

NCDENR:424

## ENCO LABORATORIES

REPORT # : CRY18717

DATE REPORTED: September 26, 2005

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 6 OF 6

## QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>LCS/MS/MSD</u>	<u>LCS</u> <u>LIMITS</u>	<u>MS/MSD</u> <u>LIMITS</u>	<u>RPD</u> <u>MS/MSD</u>	<u>RPD</u> <u>LIMITS</u>
<u>EPA Method 624</u>					
1,1-Dichloroethene	111/123/116	64-139	36-177	6	30
Benzene	97/ 93/101	69-115	53-150	8	23
Trichloroethene	96/ 96/ 98	74-118	64-124	2	25
Toluene	92/ 93/ 94	77-117	40-161	1	23
Chlorobenzene	90/ 95/ 94	76-118	44-128	1	22
<u>EPA Method 300</u>					
Nitrate-N	99/ 98/ 95	90-110	40-152	3	23

&lt; = Less Than

MS = Matrix Spike

MSD = Matrix Spike Duplicate

LCS = Laboratory Control Standard

RPD = Relative Percent Difference



# ENVIRONMENTAL CONSERVATION LABORATORIES

QSARF # P1299

4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive  
Orlando, Florida 32824-8529  
Ph. (407) 826-5314 • Fax (407) 850-6945

1015 Passport Way  
Cary, North Carolina 27513  
Ph. (919) 677-1669 • Fax (919) 677-9846

ENCO CompQAP No.: 960038G/0

## CHAIN OF CUSTODY RECORD

PROJECT REFERENCE		PROJECT NO.		P.O. NUMBER		MATRIX TYPE		REQUIRED ANALYSIS		PAGE 1 OF 1		
PROJECT LOC. (State)		SAMPLER(S) NAME		PHONE		SURFACE WATER		NITRATE-N		STANDARD REPORT DELIVERY		
NC				(919)-493-6555		GROUND WATER				<input checked="" type="checkbox"/>		
CLIENT NAME		CLIENT PROJECT MANAGER		FAX		WASTEWATER				<input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge)		
Sherrill Environmental, Inc.		Mr. Jack Sherrill		(919)-493-6554		DRINKING WATER				Date Due: _____		
CLIENT ADDRESS (CITY, STATE, ZIP)						SOIL/SOLID/SEDIMENT						
3326 Rugby Road Durham, NC 27707						NONAQUEOUS LIQUID (oil, solvent, etc.)						
SAMPLE		SAMPLE IDENTIFICATION				AIR		PRESERVATIVE		REMARKS		
STATION	DATE	TIME	GRAB	COMP		SLUDGE		NUMBER OF CONTAINERS SUBMITTED				
1	9/19/05	1245			BDMW-2	X		1 0				
2		1315			BDMW-3	X		1 0				
3		1030			BDMW-4	X		1 0				
4		1200			BDMW-5B	X		1 0				
5		930			MW-4	X		1 0				
6		1130			MW-5	X		1 0				
7		1330			BDRW-1	X		1 0				
8					* BDRW-2	X		1 0				
9	✓	1320			RW-1	X		1 2				
10												
11					* No sample after 15 min.							
12					Possible problem with pump							
13												
14												
SAMPLE KIT PREPARED BY:		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	
□ JACKSONVILLE □ ORLANDO		9/19/05	13:25	[Signature]		9/19/05	15:00	[Signature]		9/19/05	15:00	
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	
RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT	ENCO LOG NO.	REMARKS						
□ Jacksonville □ Orlando		9/19/05	15:05	YES	01871							

Environmental Conservation Laboratories, Inc.  
1015 Passport Way  
Cary, North Carolina 27513-2042  
919 / 677-1669  
Fax 919 / 677-9846  
www.encolabs.com



DHRS Certification No. E82277

CLIENT : Sherrill Environmental, Inc.  
ADDRESS: 3326 Rugby Road  
Durham, NC 27707

REPORT # : CRY18910  
DATE SUBMITTED: October 20, 2005  
DATE REPORTED : October 26, 2005

PAGE 1 OF 4

ATTENTION: Mr. Jack Sherrill

**SAMPLE IDENTIFICATION**

Samples submitted and  
identified by client as:

**REFERENCE: LOXCREEN COMPANY**

Loxcreen Company

10/20/05

CRY18910-1 : BDRW-2 @ 12:20

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. This data has been produced in accordance with NELAC Standards (June, 2003). This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

PROJECT MANAGER

A handwritten signature in cursive script, appearing to read "Chuck Smith", written over a horizontal line.

Chuck Smith

ENCO LABORATORIES  
REPORT # : CRY18910  
DATE REPORTED: October 26, 2005  
REFERENCE : LOXCREEN COMPANY  
PROJECT NAME : Loxcreen Company

PAGE 2 OF 4

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDRW-2</u>	<u>LAB BLANK</u>	<u>Units</u>
Nitrate-N	51.2	0.10 U	mg/L
Date Analyzed	10/21/05 15:25	10/21/05 12:52	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY18910

DATE REPORTED: October 26, 2005

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 3 OF 4

LABORATORY CERTIFICATIONS

Laboratory Certification: NCDENR:591

All analyses reported with this project were analyzed by the facility indicated unless identified below.

PARAMETER

Nitrate, EPA Method 300

LAB CERT #'s

NCDENR:424



ENCO LABORATORIES

REPORT # : CRY18910

DATE REPORTED: October 26, 2005

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 4 OF 4

QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>LCS/MS/MSD</u>	<u>LCS</u> <u>LIMITS</u>	<u>MS/MSD</u> <u>LIMITS</u>	<u>RPD</u> <u>MS/MSD</u>	<u>RPD</u> <u>LIMITS</u>
<u>EPA Method 300</u> Nitrate-N	97/ 89/100	90-110	40-152	12	23

< = Less Than

MS = Matrix Spike

MSD = Matrix Spike Duplicate

LCS = Laboratory Control Standard

RPD = Relative Percent Difference



# ENVIRONMENTAL CONSERVATION LABORATORIES

QSARF # \_\_\_\_\_

4810 Executive Park Court, Suite 211  
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1015 Passport Way  
Cary, North Carolina 27513  
Ph. (919) 677-1669 • Fax (919) 677-9846

ENCO CompQAP No.: 960038G/0

## CHAIN OF CUSTODY RECORD

PROJECT REFERENCE <b>Loxreen</b>		PROJECT NO.		P.O. NUMBER		MATRIX TYPE		REQUIRED ANALYSIS		PAGE <b>1</b> OF <b>1</b>				
PROJECT LOC. (State) <b>NC</b>		SAMPLER(S) NAME <b>John Sherrill</b>		PHONE <b>194936555</b> FAX		<div style="writing-mode: vertical-rl; transform: rotate(180deg);">SURFACE WATER GROUND WATER WASTEWATER DRINKING WATER SOIL/SOLID/SEDIMENT NONAQUEOUS LIQUID (oil, solvent, etc.) AIR SLUDGE OTHER</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Nitrate</b></div>				<input checked="" type="checkbox"/> STANDARD REPORT DELIVERY <input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge) Date Due: _____				
CLIENT NAME <b>Sherrill Environmental, Inc</b>		CLIENT PROJECT MANAGER												
CLIENT ADDRESS (CITY, STATE, ZIP) <b>3326 Rugby Rd Durham NC 27707</b>														
SAMPLE		SAMPLE IDENTIFICATION												
STATION	DATE	TIME	GRAB	COMP			PRESERVATIVE		NUMBER OF CONTAINERS SUBMITTED		REMARKS			
<b>1BDRW-2</b>	<b>10/20/05</b>	<b>1220</b>	<b>X</b>											
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
SAMPLE KIT PREPARED BY: <input type="checkbox"/> JACKSONVILLE <input type="checkbox"/> ORLANDO					DATE	TIME	RELINQUISHED BY: (SIGNATURE)			DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE) <i>John Sherrill</i>					DATE <b>10/20/05</b>	TIME	RECEIVED BY: (SIGNATURE)			DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE)					DATE	TIME	RELINQUISHED BY: (SIGNATURE)			DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>Amber...</i>					DATE <b>10/20/05</b>	TIME <b>13:36</b>	CUSTODY INTACT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	ENCO LOG NO. <b>CR418910</b>		REMARKS				

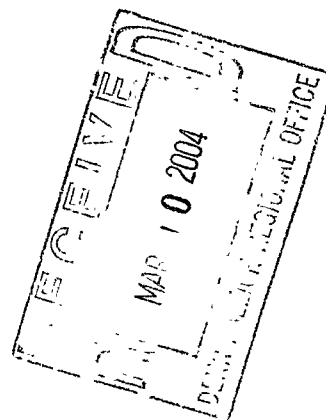


**SHERRILL ENVIRONMENTAL, INC.**  
Environmental and Geologic Services

March 10, 2004

Mr. Jay Zimmerman  
NCDENR  
DWQ-Groundwater Section, Raleigh Regional Office  
1628 Mail Service Center  
Raleigh, NC 27699-1628

Subject: Semiannual Monitoring for Nitrate  
March 1, 2004  
Incident No. 9179 (Shared)  
The Loxcreen Company  
Roxboro, North Carolina



Dear Mr. Zimmerman:

Sherrill Environmental, Inc. (Sherrill), on behalf of The Loxcreen Company (Loxcreen), conducted semiannual groundwater monitoring on March 1, 2004, at the Roxboro, North Carolina facility (Figure 1). Groundwater samples were collected from six monitoring wells and three recovery wells (Figure 2). The nine groundwater samples were analyzed for nitrate.

#### **Field Activities**

Groundwater sampling was performed by Sherrill personnel on March 1, 2004. Activities were initiated by unlocking and opening the monitoring wells to allow the groundwater levels to equilibrate with atmospheric pressure. The depth to water was measured in each monitoring well with an electronic water level indicator (Table 1). Water levels were not measured in the recovery wells. Well volumes were calculated, and each well was purged a minimum of three volumes. Purging and sampling were performed with a new disposable polyethylene bailer for each monitoring well. Groundwater samples were collected from the recovery wells at each well's discharge sampling port. All samples were collected in laboratory-supplied glassware, placed in an ice-filled cooler, and transferred to a laboratory certified by NCDENR using standard, chain-of-custody procedures.

#### **Data Analysis**

A potentiometric surface map was generated using the groundwater level measurements obtained on March 1, 2004 (Figure 3). The data suggest a significant radius of influence for recovery wells BDRW-1, BDRW-2, and RW-1. The recovery wells appear to be controlling the migration of the nitrate contaminant plume. The groundwater table at the

site is above normal due to the greater than normal amounts of precipitation for 2003. The rise in the groundwater elevations is shown on Chart 1.

The nitrate analysis of the groundwater samples collected on March 1, 2004 is summarized on Table 2, and the laboratory report is attached. The groundwater samples contained nitrate (NO<sub>3</sub>) in concentrations that ranged from less than the detection limit of 0.1 mg/L to 190 mg/L. Four of the nine groundwater samples contained concentrations of nitrate above the NCAC 2L Standard of 10 mg/L (Figure 4). The groundwater sample from MW-5 had the highest concentration of nitrate at 190 mg/L. The groundwater samples from recovery wells BDRW-1 and BDRW-2 had concentrations of nitrate at 21 mg/L and 48 mg/L, respectively.

In summary, the groundwater plume of nitrate contamination appears to be limited to onsite. Only two of the six monitoring wells had a groundwater sample with nitrate concentrations above the NCAC 2L Standard. The recovery wells appear to be controlling the migration of the plume. The recovery wells are functioning to clean the site as the nitrate concentrations in the water being removed is above the NCAC 2L Standard.

The next monitoring event for nitrate is scheduled for September 2004. Please contact us at (919) 420-7822 or Mr. Charles Dix of Loxcreen at (336) 599-9261, if you have any questions or need additional information.

Sincerely,

Sherrill Environmental, Inc.



John (Jack) Sherrill, L.G.



CC: Mr. Charles Dix, Plant Engineer, The Loxcreen Company, Inc.  
Mr. Brent Theiling, Engineering Manager, The Loxcreen Company, Inc.

**TABLE 1**  
**GROUNDWATER TABLE MEASUREMENTS**  
**LOXCREEN COMPANY, ROXBORO, NC**

	TOC	3/11/2002		9/23/2002		3/10/2003		9/8/2003		3/1/2004	
	Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.
BDMW-2	97.34	14.93	82.41	16.61	80.73	11.09	86.25	10.05	87.29	8.87	88.47
BDMW-3	97.56	17.67	79.89	20.92	76.64	12.96	84.60	11.93	85.63	9.51	88.05
BDMW-4	97.96	37.78	60.18	39.57	58.39	32.24	65.72	28.53	69.43	28.34	69.62
BDMW-5	96.85	NM		NM		NM		NM		NM	
BDMW-5B	96.65	18.11	78.54	23.18	73.47	12.85	83.80	11.82	84.83	10.35	86.30
MW-1	98.07	NM		NM		NM		NM		NM	
MW-4	97.76	29.36	68.40	30.47	67.29	25.88	71.88	22.31	75.45	21.93	75.83
MW-5	97.45	22.31	75.14	25.21	72.24	17.33	80.12	15.02	82.43	14.05	83.40
MW-6	104.36	23.34	81.02	28.76	75.60	15.38	88.98	14.53	89.83	12.64	91.72
AM-1	94.47	NM		NM		NM		NM		NM	
AM-6	88.24	NM		NM		NM		NM		NM	
AMW-8	92.89	NM		NM		NM		NM		NM	
BDRW-1	97.24	NM		NM		NM		NM		NM	
BDRW-2	95.73	NM		NM		NM		NM		NM	
RW-1	97.41	NM		NM		NM		NM		NM	

Elevations are relative to a site benchmark assigned an elevation of 100 feet.

TOC = Top of casing

Depth = Depth to groundwater from TOC

NM = Not Measured

All measurements are in feet.

TABLE 2  
GROUNDWATER ANALYSES  
LOXGREEN COMPANY

Sherrill Environmental, Inc.

	Mar-96	Sep-96	Mar-97	Mar-98	Sep-98	Mar-99	Sep-99	Mar-00	Sep-00	Mar-01	Sep-01	Mar-02	Sep-02	Mar-03	Sep-03	Mar-04
	Nitrate Concentrations in mg/L															
BDMW-2			0.11	5.9	<0.4	<0.02	<0.02	0.38	<0.02	<0.02	<0.02	0.02	<0.1	<0.2	<0.1	<0.1
BDMW-3			NS	NS	NS	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.1	<0.2	<0.1	<0.1
BDMW-4	<b>11.9</b>	1.8	6.7	<b>13.0</b>	2.6	9.4	<b>12</b>	8.4	4.8	0.48	<b>15</b>	6	<b>33</b>	7.1	6.9	8
BDMW-5			NS	NS	<b>11</b>	<0.02	<0.02	NS	NS	NS	NS	NS	NS	NS	NS	NS
BDMW-5B								1.3	0.81	5.3	0.14	3.2	<0.1	<b>12</b>	<b>11</b>	<b>12</b>
MW-4	<b>12.2</b>	<b>11.7</b>	3.4	<b>15.7</b>	4.6	7.9	5.3	8.8	2.5	8.3	3.3	<b>10</b>	3.4	8.7	7.2	6.7
MW-5	<b>17.5</b>	<b>137</b>	<b>187</b>	<b>18.6</b>	<b>240</b>	<b>460</b>	<b>360</b>	<b>520</b>	<b>400</b>	<b>430</b>	<b>520</b>	<b>450</b>	<b>240</b>	<b>1,100</b>	<b>210</b>	<b>190</b>
AMW-1	1.4	0.2	1.1	1.7	3.2	1.8	1.5	2	NS	NS	NS	NS	NS	NS	NS	NS
AMW-6	5.5	1.4	5.6	3.2	3.4	1.7	NS	NS	1.2	NS	NS	NS	NS	NS	NS	NS
AMW-8								<0.02	NS	NS	NS	NS	NS	NS	NS	NS
BDRW-1		<b>21.5</b>	<b>10.2</b>	<b>18.6</b>	<b>33</b>	<b>160</b>	<b>35</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>38</b>	<b>27</b>	<b>52</b>	<b>12</b>	<b>23</b>	<b>21</b>
BDRW-2		<b>22</b>	<b>16</b>	<0.1	<b>93</b>	<b>26</b>	<b>26</b>	<b>37</b>	<b>38</b>	<b>26</b>	<b>56</b>	<b>55</b>	<b>79</b>	<b>47</b>	<b>54</b>	<b>48</b>
RW-1			0.5	0.6	0.5	0.26	0.25	0.37	0.37	0.27	0.33	0.66	0.38	0.64	NS	0.62

Bold values are above the 10 mg/L NCAC 2L Standard listed for Nitrate.

GW-DatTbl-04.xlsNitrate-04

GROUNDWATER ELEVATIONS

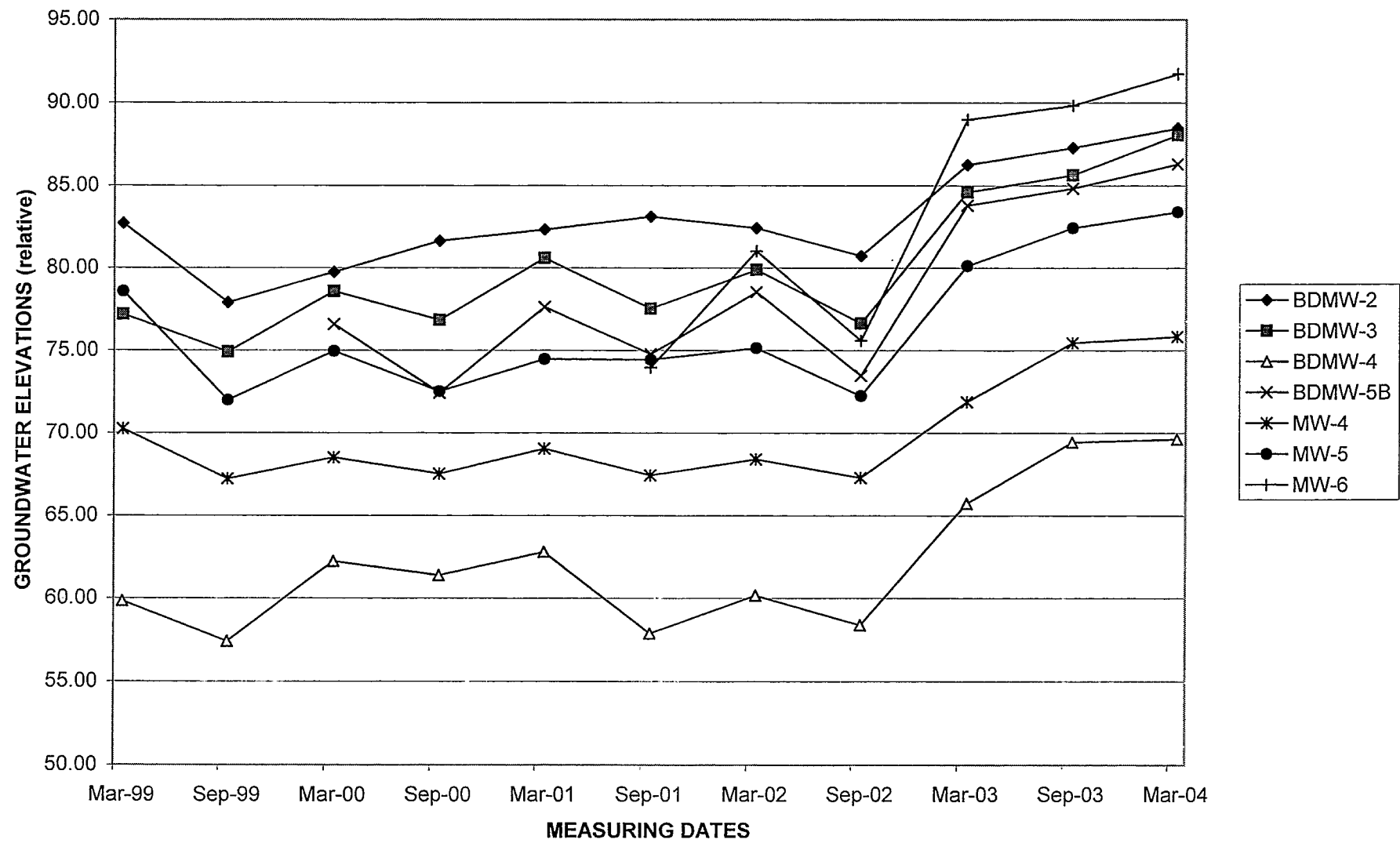


CHART 1





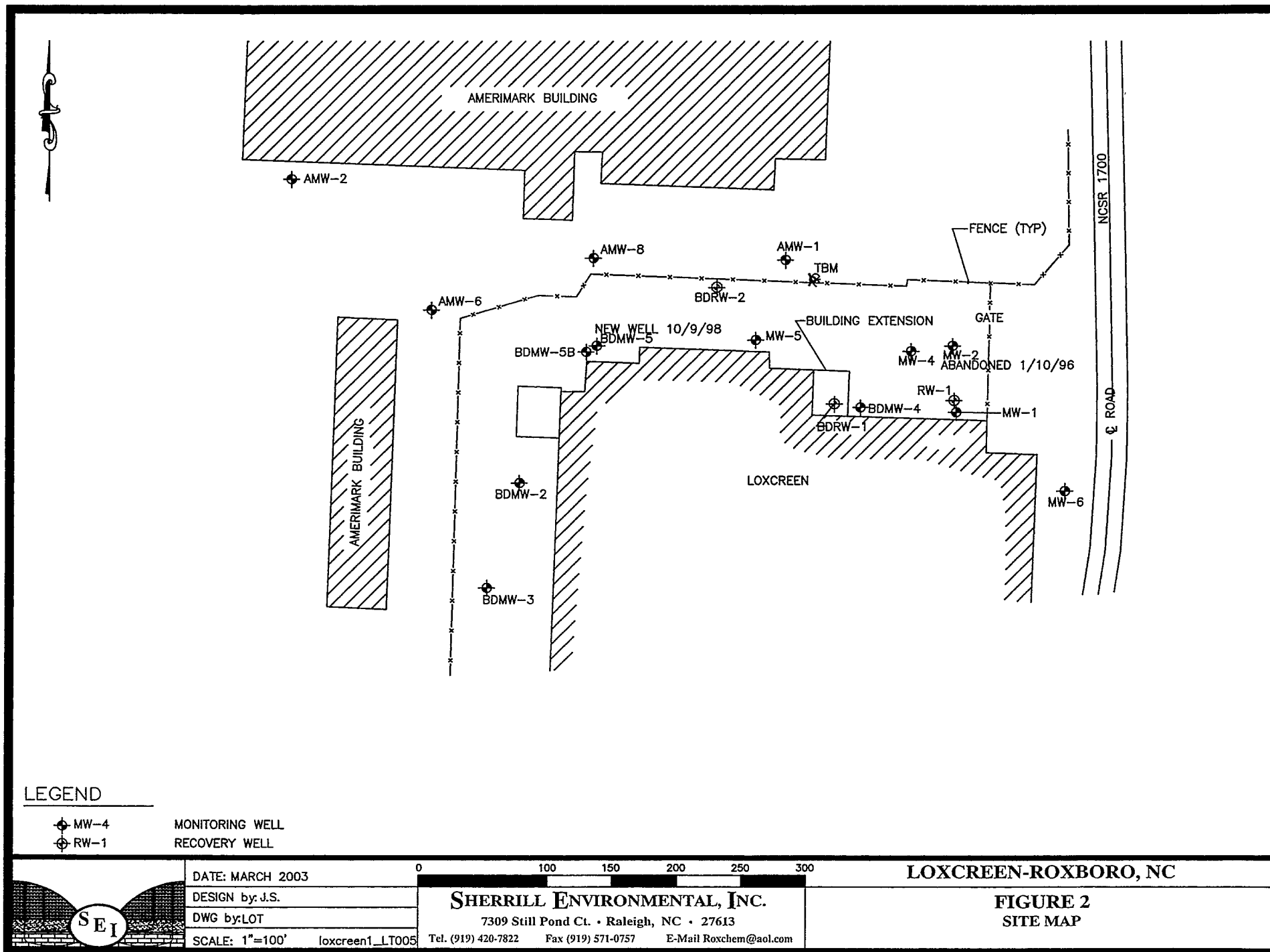
SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET

**Sherrill Environmental, Inc.**  
Environmental and Geologic Services  
RALEIGH, NORTH CAROLINA

SITE LOCATION MAP  
THE LOXGREEN COMPANY  
ROXBORO, NORTH CAROLINA

DATE: MAY 1999      FIGURE: 1





LEGEND

- ⊕ MW-4 MONITORING WELL
- ⊕ RW-1 RECOVERY WELL

DATE: MARCH 2003

DESIGN by: J.S.

DWG by: LOT

SCALE: 1"=100'

loxgreen1\_LT005

**SHERRILL ENVIRONMENTAL, INC.**

7309 Still Pond Ct. • Raleigh, NC • 27613

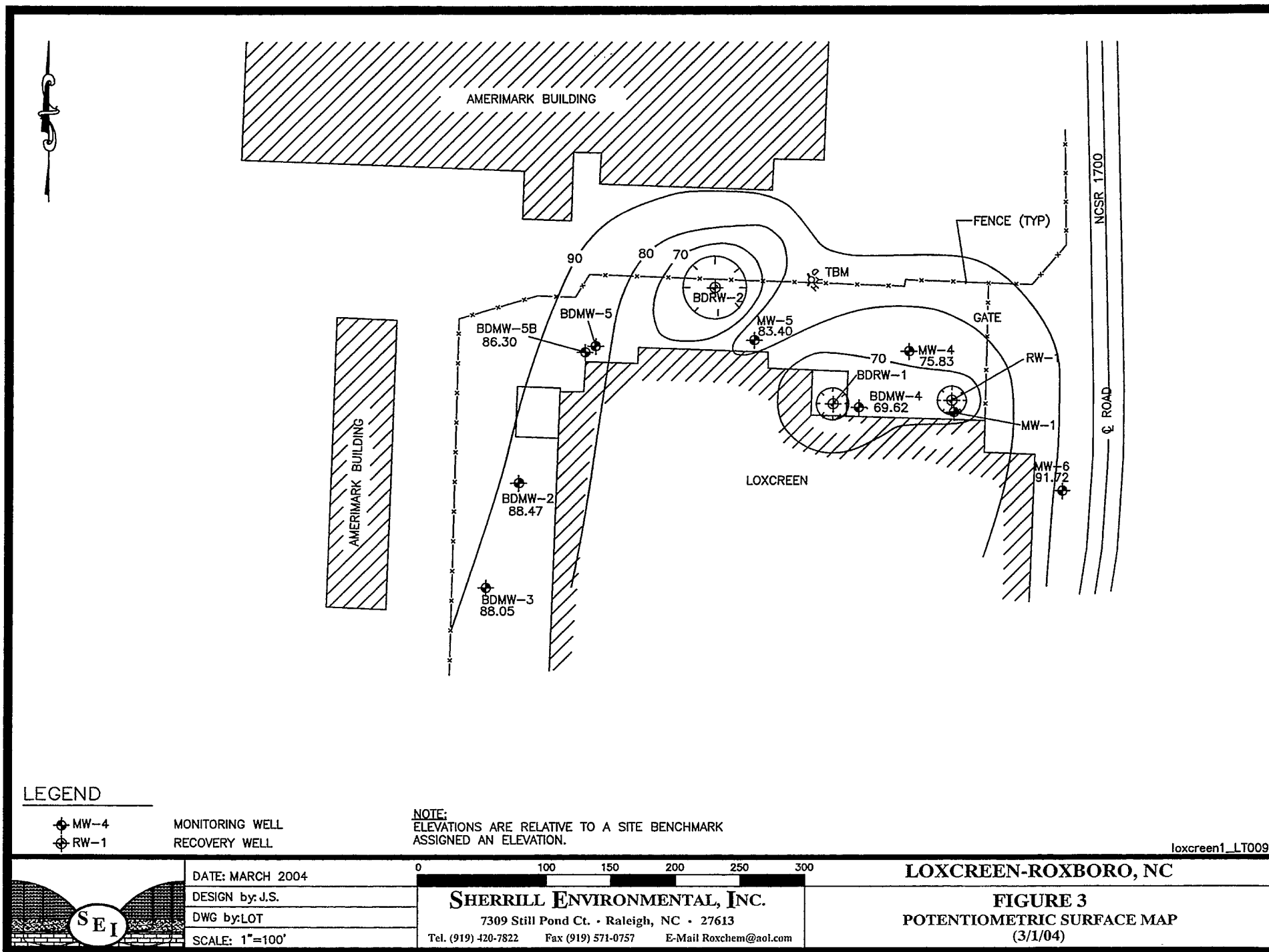
Tel. (919) 420-7822

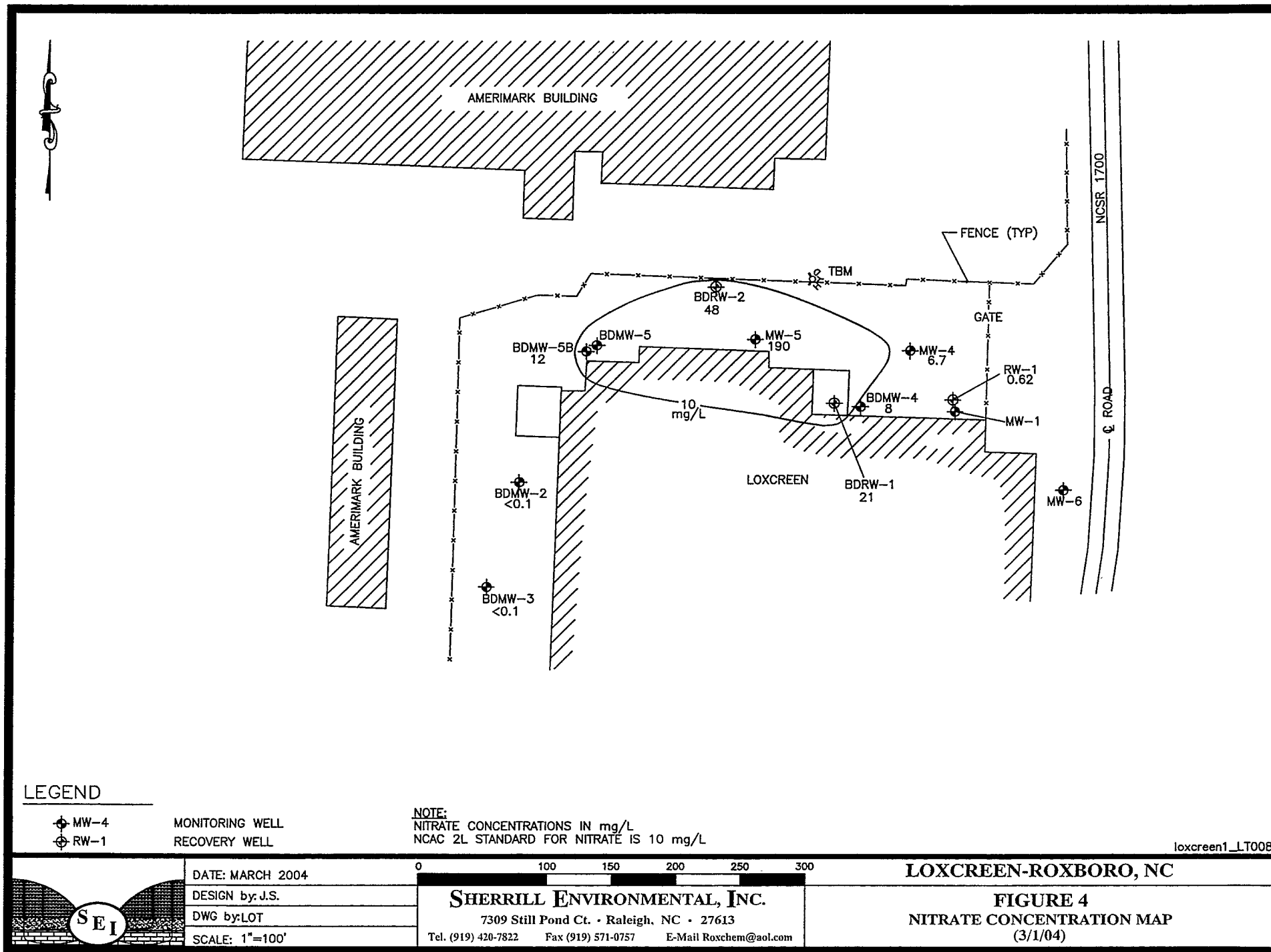
Fax (919) 571-0757

E-Mail Roxchem@aol.com

LOXGREEN-ROXBORO, NC

**FIGURE 2**  
SITE MAP





Environmental Conservation Laboratories, Inc.  
1015 Passport Way  
Cary, North Carolina 27513-2042  
919 / 677-1669  
Fax 919 / 677-9846  
www.encolabs.com



CLIENT : Sherrill Environmental, Inc.  
ADDRESS: 7309 Still Pond Road  
Raleigh, NC 27613

REPORT # : CRY15341  
DATE SUBMITTED: March 1, 2004  
DATE REPORTED : March 4, 2004

PAGE 1 OF 5

ATTENTION: Mr. Jack Sherrill

#### SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

REFERENCE: LOXCREEN COMPANY

Loxcreen Company

03/01/04

CRY15341-1	:	BDMW-2	@	13:40
CRY15341-2	:	BDMW-3	@	14:10
CRY15341-3	:	BDMW-4	@	11:30
CRY15341-4	:	BDMW-5B	@	13:05
CRY15341-5	:	MW-4	@	10:45
CRY15341-6	:	MW-5	@	12:30
CRY15341-7	:	BDRW-1	@	14:25
CRY15341-8	:	BDRW-2	@	14:35
CRY15341-9	:	RW-1	@	14:45

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. This data has been produced in accordance with NELAC Standards (May, 2001). This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

PROJECT MANAGER

A handwritten signature in cursive script, appearing to read "Chuck Smith", written over a horizontal line.

Chuck Smith

ENCO LABORATORIES

REPORT # : CRY15341  
 DATE REPORTED: March 4, 2004  
 REFERENCE : LOXCREEN COMPANY  
 PROJECT NAME : Loxcreen Company

PAGE 2 OF 5

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDMW-2</u>	<u>BDMW-3</u>	<u>Units</u>
Nitrate-N	0.10 U	0.10 U	mg/L
Date Analyzed	03/02/04 11:00	03/02/04 11:21	

EPA METHOD 300 -  
Anions by IC

	<u>BDMW-4</u>	<u>BDMW-5B</u>	<u>Units</u>
Nitrate-N	8.0	12	mg/L
Date Analyzed	03/02/04 20:14	03/02/04 20:35	

EPA METHOD 300 -  
Anions by IC

	<u>MW-4</u>	<u>MW-5</u>	<u>Units</u>
Nitrate-N	6.7	190	mg/L
Date Analyzed	03/02/04 20:55	03/02/04 21:16	

EPA METHOD 300 -  
Anions by IC

	<u>BDRW-1</u>	<u>BDRW-2</u>	<u>Units</u>
Nitrate-N	21	48	mg/L
Date Analyzed	03/02/04 21:36	03/02/04 21:57	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY15341  
 DATE REPORTED: March 4, 2004  
 REFERENCE : LOXCREEN COMPANY  
 PROJECT NAME : Loxcreen Company

PAGE 3 OF 5

RESULTS OF ANALYSIS

EPA METHOD 624 -  
VOLATILE ORGANICS

	<u>RW-1</u>	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	1.0 U	1.0 U	ug/L
Benzene	1.0 U	1.0 U	ug/L
Toluene	1.0 U	1.0 U	ug/L
Chlorobenzene	1.0 U	1.0 U	ug/L
Ethylbenzene	1.0 U	1.0 U	ug/L
m-Xylene & p-Xylene	2.0 U	2.0 U	ug/L
o-Xylene	1.0 U	1.0 U	ug/L
1,3-Dichlorobenzene	1.0 U	1.0 U	ug/L
1,4-Dichlorobenzene	1.0 U	1.0 U	ug/L
1,2-Dichlorobenzene	1.0 U	1.0 U	ug/L
Isopropyl Ether	1.0 U	1.0 U	ug/L

Surrogate:

	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Dibromofluoromethane	107	107	73-138
D8-Toluene	114	*119	77-118
Bromofluorobenzene	116	109	70-130
Date Analyzed	03/02/04 07:51	03/01/04 10:49	

EPA METHOD 300 -  
Anions by IC

	<u>RW-1</u>	<u>LAB BLANK</u>	<u>Units</u>
Nitrate-N	0.62	0.10 U	mg/L
Date Analyzed	03/02/04 13:44	03/02/04 10:19	

\* = Surrogate recovery outside historical limits. Data released without qualification based on an acceptable recovery for two of three surrogates.  
 U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY15341  
DATE REPORTED: March 4, 2004  
REFERENCE : LOXCREEN COMPANY  
PROJECT NAME : Loxcreen Company

PAGE 4 OF 5

LABORATORY CERTIFICATIONS

Laboratory Certification: NCDENR:591

All analyses reported with this project were analyzed by the facility indicated unless identified below.

PARAMETER

Nitrate, EPA Method 300

LAB CERT #'s

NCDENR:424

ENCO LABORATORIES

REPORT # : CRY15341  
 DATE REPORTED: March 4, 2004  
 REFERENCE : LOXCREEN COMPANY  
 PROJECT NAME : Loxcreen Company

PAGE 5 OF 5

QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY LCS/MS/MSD</u>	<u>LCS LIMITS</u>	<u>MS/MSD LIMITS</u>	<u>RPD MS/MSD</u>	<u>RPD LIMITS</u>
<u>EPA Method 624</u>					
1,1-Dichloroethene	105/117/105	64-139	36-177	11	30
Benzene	106/ 98/102	76-114	53-150	4	23
Trichloroethene	106/100/104	74-118	64-124	4	25
Toluene	98/ 92/ 94	77-117	40-161	2	23
Chlorobenzene	105/103/104	76-118	44-128	<1	22
<u>EPA Method 300</u>					
Nitrate-N	98/101/ 99	90-110	40-152	2	23

< = Less Than  
 MS = Matrix Spike  
 MSD = Matrix Spike Duplicate  
 LCS = Laboratory Control Standard  
 RPD = Relative Percent Difference





# ENVIRONMENTAL CONSERVATION LABORATORIES

4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive  
Orlando, Florida 32824-8529  
Ph. (407) 826-5314 • Fax (407) 850-6945

1015 Passport Way  
Cary, North Carolina 27513  
Ph. (919) 677-1669 • Fax (919) 677-9846

QSARF # 112141

P241

ENCO CompQAP No.: 960038G/0

## CHAIN OF CUSTODY RECORD

PROJECT REFERENCE <b>Loxgreen Company</b>		PROJECT NO. <b>LOXGREEN COMPANY</b>		P.O. NUMBER		MATRIX TYPE		REQUIRED ANALYSIS		PAGE <input checked="" type="checkbox"/> OF			
PROJECT LOC. (State) <b>NC</b>		SAMPLER(S) NAME <b>Jack Sherrill</b>		PHONE <b>(919)-420-7822</b>		<div>SURFACE WATER</div> <div>GROUND WATER</div> <div>WASTEWATER</div> <div>DRINKING WATER</div> <div>SOIL/SOLID/SEDIMENT</div> <div>NONAQUEOUS LIQUID (oil, solvent, etc.)</div> <div>AIR</div> <div>SLUDGE</div> <div>OTHER</div>		<div>NITRATE</div> <div>CADMIUM</div> <div>CHROMIUM</div> <div>COBALT</div> <div>COPPER</div> <div>IRON</div> <div>MANGANESE</div> <div>NICKEL</div> <div>SILICA</div> <div>SILVER</div> <div>SODIUM</div> <div>ZINC</div>		<div><input checked="" type="checkbox"/> STANDARD REPORT DELIVERY</div> <div><input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge)</div> <div>Date Due: _____</div>			
CLIENT NAME <b>Sherrill Environmental, Inc.</b>		CLIENT PROJECT MANAGER <b>Mr. Jack Sherrill</b>											
CLIENT ADDRESS (CITY, STATE, ZIP) <b>7309 Still Pond Road Raleigh, NC 27613</b>													
SAMPLE													
STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	PRESERVATIVE						REMARKS	
1	3/1/04	1340			BDMW-2	X					1	0	
2		1410			BDMW-3	X					1	0	
3		1130			BDMW-4	X					1	0	
4		1305			BDMW-5B	X					1	0	
5		1045			MW-4	X					1	0	
6		1230			MW-5	X					1	0	
7		1425			BDRW-1	X					1	0	
8		1435			BDRW-2	X					1	0	
9		1445			RW-1	X					1	2	
10													
11													
12													
13													
14													
SAMPLE KIT PREPARED BY: <input type="checkbox"/> JACKSONVILLE <input type="checkbox"/> ORLANDO		DATE <b>3/1/04</b>	TIME <b>1534</b>	RELINQUISHED BY: (SIGNATURE) <b>Jack Sherrill</b>		DATE <b>3/1/04</b>	TIME <b>15:34</b>	RECEIVED BY: (SIGNATURE) <b>Byron Jennings</b>		DATE	TIME		
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME		
RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME		
RECEIVED FOR LABORATORY BY: (SIGNATURE) <b>Byron Jennings</b>		DATE <b>3/1/04</b>	TIME <b>15:39</b>	CUSTODY INTACT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		ENCO LOG NO. <b>CR15341</b>		REMARKS					

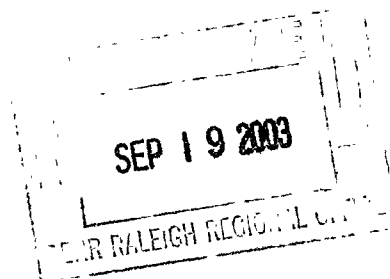


**SHERRILL ENVIRONMENTAL, INC.**  
Environmental and Geologic Services

September 18, 2003

Mr. Jay Zimmerman  
NCDENR  
Groundwater Section – Raleigh Regional Office  
Post Office Box 27687  
Raleigh, NC 27611

Subject: Semiannual Monitoring for Nitrate  
September 8, 2003  
Incident No. 9179 (Shared)  
The Loxcreen Company  
Roxboro, North Carolina



Dear Mr. Zimmerman:

Sherrill Environmental, Inc. (Sherrill), on behalf of The Loxcreen Company (Loxcreen), conducted semiannual groundwater monitoring on September 8, 2003, at the Roxboro, North Carolina facility (Figure 1). Groundwater samples were collected from six monitoring wells and two recovery wells (Figure 2). The eight groundwater samples were analyzed for nitrate. Recovery well RW-1 was not in service. Loxcreen had sent the water pump back to the factory for repairs.

**Field Activities**

Groundwater sampling was performed by Sherrill personnel on September 8, 2003. Activities were initiated by unlocking and opening the monitoring wells to allow the groundwater levels to equilibrate with atmospheric pressure. The depth to water was measured in each monitoring well with an electronic water level indicator (Table 1). Water levels were not measured in the recovery wells. Well volumes were calculated, and each well was purged a minimum of three volumes. Purging and sampling were performed with a new disposable polyethylene bailer for each monitoring well. Groundwater samples were collected from the recovery wells at each well's discharge sampling port. All samples were collected in laboratory-supplied glassware, placed in an ice-filled cooler, and transferred to a laboratory certified by NCDENR using standard, chain-of-custody procedures.

**Data Analysis**

A potentiometric surface map was generated using the groundwater level measurements obtained on September 8, 2003 (Figure 3). The data suggest a significant radius of influence for recovery wells BDRW-1, BDRW-2, and RW-1. The recovery wells appear to be controlling the migration of the nitrate contaminant plume. The groundwater table

at the site is approximately 10 feet above normal due to the greater than normal amounts of precipitation for 2003. The rise in the groundwater elevations is shown on Chart 1.

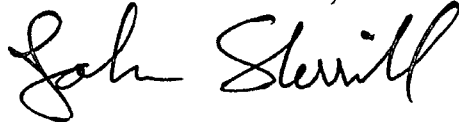
The nitrate analysis of the groundwater samples collected on September 8, 2003 is summarized on Table 2, and the laboratory report is attached. The groundwater samples contained nitrate ( $\text{NO}_3$ ) in concentrations that ranged from less than the detection limit of 0.1 mg/L to 210 mg/L. Four of the eight groundwater samples contained concentrations of nitrate above the NCAC 2L Standard of 10 mg/L (Figure 4). The groundwater sample from MW-5 had the highest concentration of nitrate at 210 mg/L. The groundwater samples from recovery wells BDRW-1 and BDRW-2 had concentrations of nitrate at 23 mg/L and 54 mg/L, respectively.

In summary, the groundwater plume of nitrate contamination appears to be limited to onsite. Only two of the six monitoring wells had a groundwater sample with nitrate concentrations above the NCAC 2L Standard. The recovery wells appear to be controlling the migration of the plume. The recovery wells are functioning to clean the site as the nitrate concentrations in the water being removed is above the NCAC 2L Standard.

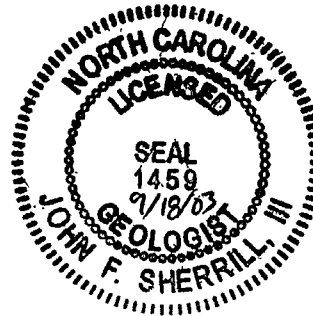
The next monitoring event for nitrate is scheduled for March 2004. Please contact us at (919) 420-7822 or Mr. Charles Dix of Loxcreen at (336) 599-9261, if you have any questions or need additional information.

Sincerely,

Sherrill Environmental, Inc.



John (Jack) Sherrill, L.G.



CC: Mr. Charles Dix, Plant Engineer, The Loxcreen Company, Inc.  
Mr. Brent Theiling, Engineering Manager, The Loxcreen Company, Inc.

**TABLE 1**  
**GROUNDWATER TABLE MEASUREMENTS**  
**LOXGREEN COMPANY, ROXBORO, NC**

	TOC	3/29/1999		9/14/1999		3/20/2000		9/11/2000		3/12/2001		9/17/2001	
	Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.
BDMW-2	97.34	14.63	82.71	19.44	77.90	17.60	79.74	15.70	81.64	15.02	82.32	14.22	83.12
BDMW-3	97.56	20.37	77.19	22.65	74.91	18.98	78.58	20.72	76.84	16.97	80.59	20.02	77.54
BDMW-4	97.96	38.12	59.84	40.54	57.42	35.72	62.24	36.58	61.38	35.17	62.79	40.08	57.88
BDMW-5	96.85	19.86	76.99	24.93	71.92	NM		NM		NM		NM	
BDMW-5B	96.65					20.07	76.58	24.23	72.42	19.03	77.62	21.87	74.78
MW-1	98.07	NM		20.51	77.56	NM		NM		NM		NM	
MW-4	97.76	27.52	70.24	30.54	67.22	29.24	68.52	30.23	67.53	28.72	69.04	30.32	67.44
MW-5	97.45	18.87	78.58	25.47	71.98	22.50	74.95	24.93	72.52	22.98	74.47	23.01	74.44
MW-6	104.36							30.77	73.59	NM		30.40	73.96
AM-1	94.47	15.34	79.13	21.90	72.57	19.05	75.42	NM		NM		NM	
AM-6	88.24	5.14	83.10	9.48	78.76	NM		6.14	82.10	NM		NM	
AMW-8	92.89					10.32	82.57	NM		NM		NM	
BDRW-1	97.24	NM		NM		NM		NM		NM		NM	
BDRW-2	95.73	NM		NM		NM		NM		NM		NM	
RW-1	97.41	NM		NM		NM		NM		NM		NM	

Elevations are relative to a site benchmark assigned an elevation of 100 feet.

TOC = Top of casing

Depth = Depth to groundwater from TOC

NM = Not Measured

All measurements are in feet.

**TABLE 1**  
**GROUNDWATER TABLE MEASUREMENTS**  
**LOXGREEN COMPANY, ROXBORO, NC**

	TOC	3/11/2002		9/23/2002		3/10/2003		9/8/2003	
	Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.
BDMW-2	97.34	14.93	82.41	16.61	80.73	11.09	86.25	10.05	87.29
BDMW-3	97.56	17.67	79.89	20.92	76.64	12.96	84.60	11.93	85.63
BDMW-4	97.96	37.78	60.18	39.57	58.39	32.24	65.72	28.53	69.43
BDMW-5	96.85	NM		NM		NM		NM	
BDMW-5B	96.65	18.11	78.54	23.18	73.47	12.85	83.80	11.82	84.83
MW-1	98.07	NM		NM		NM		NM	
MW-4	97.76	29.36	68.40	30.47	67.29	25.88	71.88	22.31	75.45
MW-5	97.45	22.31	75.14	25.21	72.24	17.33	80.12	15.02	82.43
MW-6	104.36	23.34	81.02	28.76	75.60	15.38	88.98	14.53	89.83
AM-1	94.47	NM		NM		NM		NM	
AM-6	88.24	NM		NM		NM		NM	
AMW-8	92.89	NM		NM		NM		NM	
BDRW-1	97.24	NM		NM		NM		NM	
BDRW-2	95.73	NM		NM		NM		NM	
RW-1	97.41	NM		NM		NM		NM	

Elevations are relative to a site benchmark assigned an elevation of 100 feet.

TOC = Top of casing

Depth = Depth to groundwater from TOC

NM = Not Measured

All measurements are in feet.

**TABLE 2**  
**GROUNDWATER ANALYSES**  
**LOXCREEN COMPANY**

**Sherrill Environmental, Inc.**

	Mar-96	Sep-96	Mar-97	Mar-98	Sep-98	Mar-99	Sep-99	Mar-00	Sep-00	Mar-01	Sep-01	Mar-02	Sep-02	Mar-03	Sep-03
	Nitrate Concentrations in mg/L														
BDMW-2			0.11	5.9	<0.4	<0.02	<0.02	0.38	<0.02	<0.02	<0.02	0.02	<0.1	<0.2	<0.1
BDMW-3			NS	NS	NS	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.1	<0.2	<0.1
BDMW-4	<b>11.9</b>	1.8	6.7	<b>13.0</b>	2.6	9.4	<b>12</b>	8.4	4.8	0.48	<b>15</b>	6	<b>33</b>	7.1	6.9
BDMW-5			NS	NS	<b>11</b>	<0.02	<0.02	NS	NS	NS	NS	NS	NS	NS	NS
BDMW-5B								1.3	0.81	5.3	0.14	3.2	<0.1	<b>12</b>	<b>11</b>
MW-4	<b>12.2</b>	<b>11.7</b>	3.4	<b>15.7</b>	4.6	7.9	5.3	8.8	2.5	8.3	3.3	<b>10</b>	3.4	8.7	7.2
MW-5	<b>17.5</b>	<b>137</b>	<b>187</b>	<b>18.6</b>	<b>240</b>	<b>460</b>	<b>360</b>	<b>520</b>	<b>400</b>	<b>430</b>	<b>520</b>	<b>450</b>	<b>240</b>	<b>1,100</b>	<b>210</b>
AMW-1	1.4	0.2	1.1	1.7	3.2	1.8	1.5	2	NS	NS	NS	NS	NS	NS	NS
AMW-6	5.5	1.4	5.6	3.2	3.4	1.7	NS	NS	1.2	NS	NS	NS	NS	NS	NS
AMW-8								<0.02	NS	NS	NS	NS	NS	NS	NS
BDRW-1		<b>21.5</b>	<b>10.2</b>	<b>18.6</b>	<b>33</b>	<b>160</b>	<b>35</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>38</b>	<b>27</b>	<b>52</b>	<b>12</b>	<b>23</b>
BDRW-2		<b>22</b>	<b>16</b>	<0.1	<b>93</b>	<b>26</b>	<b>26</b>	<b>37</b>	<b>38</b>	<b>26</b>	<b>56</b>	<b>55</b>	<b>79</b>	<b>47</b>	<b>54</b>
RW-1			0.5	0.6	0.5	0.26	0.25	0.37	0.37	0.27	0.33	0.66	0.38	0.64	NS

Bold values are above the 10 mg/L NCAC 2L Standard listed for Nitrate.

GROUNDWATER ELEVATIONS

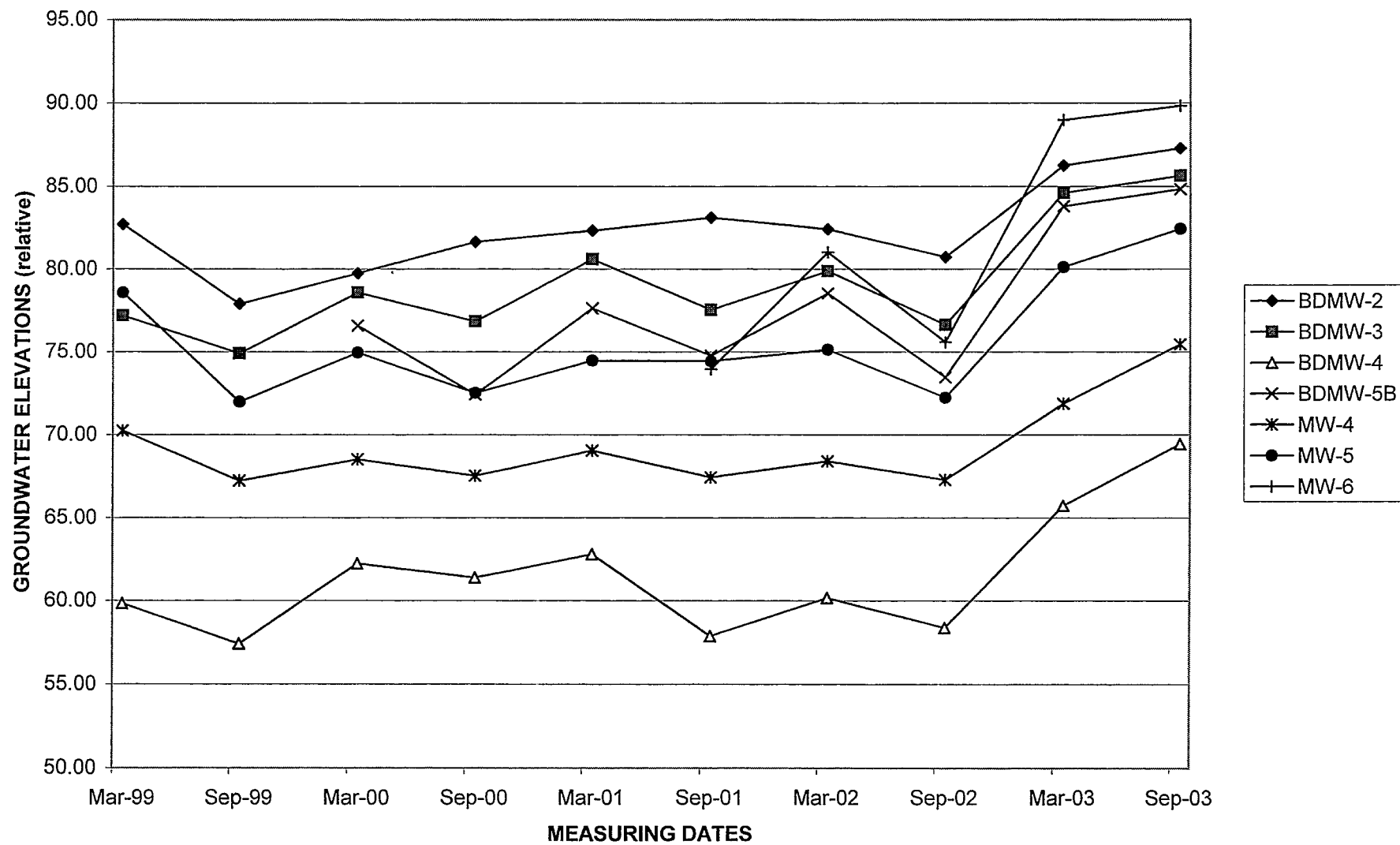
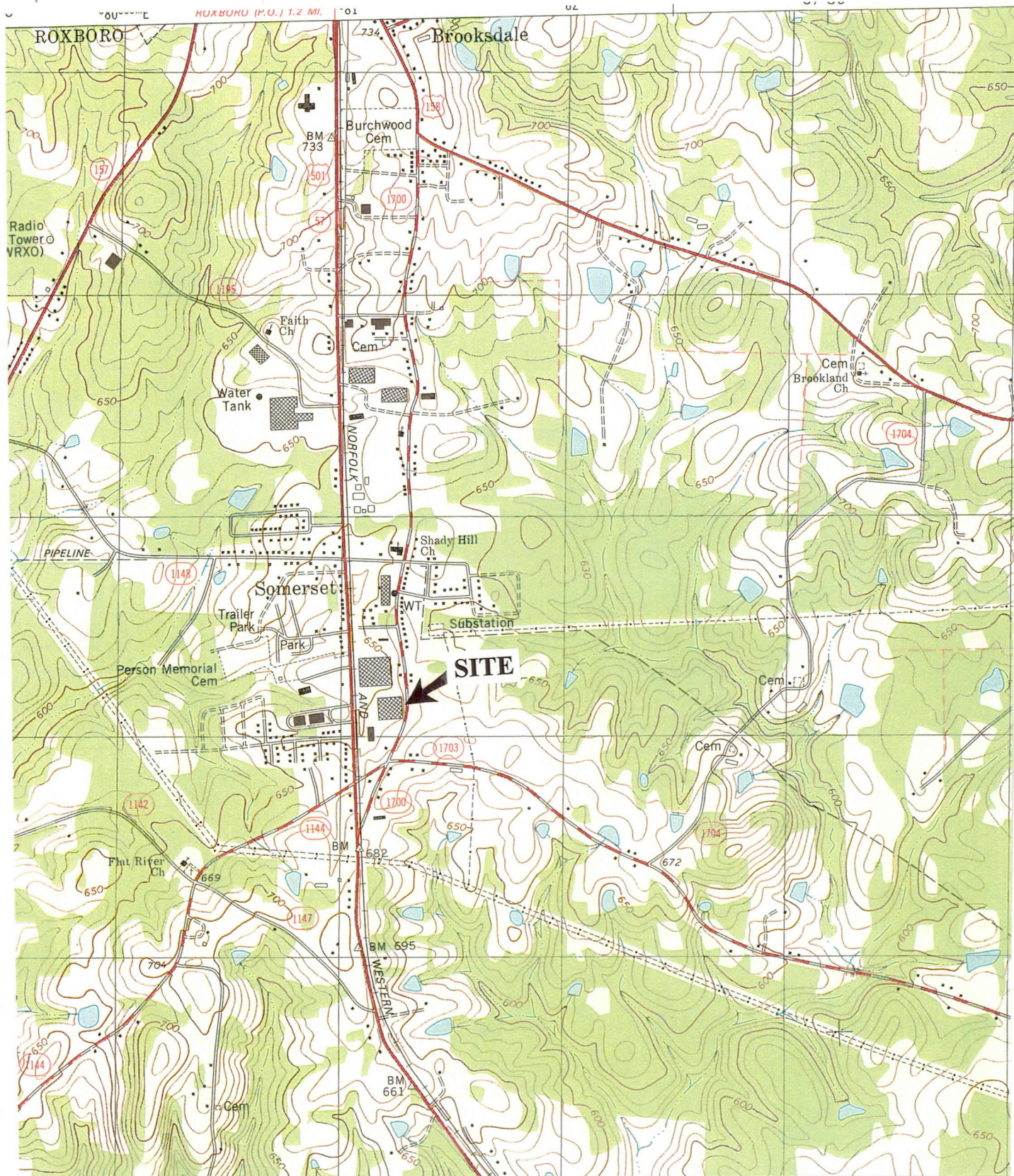


CHART 1





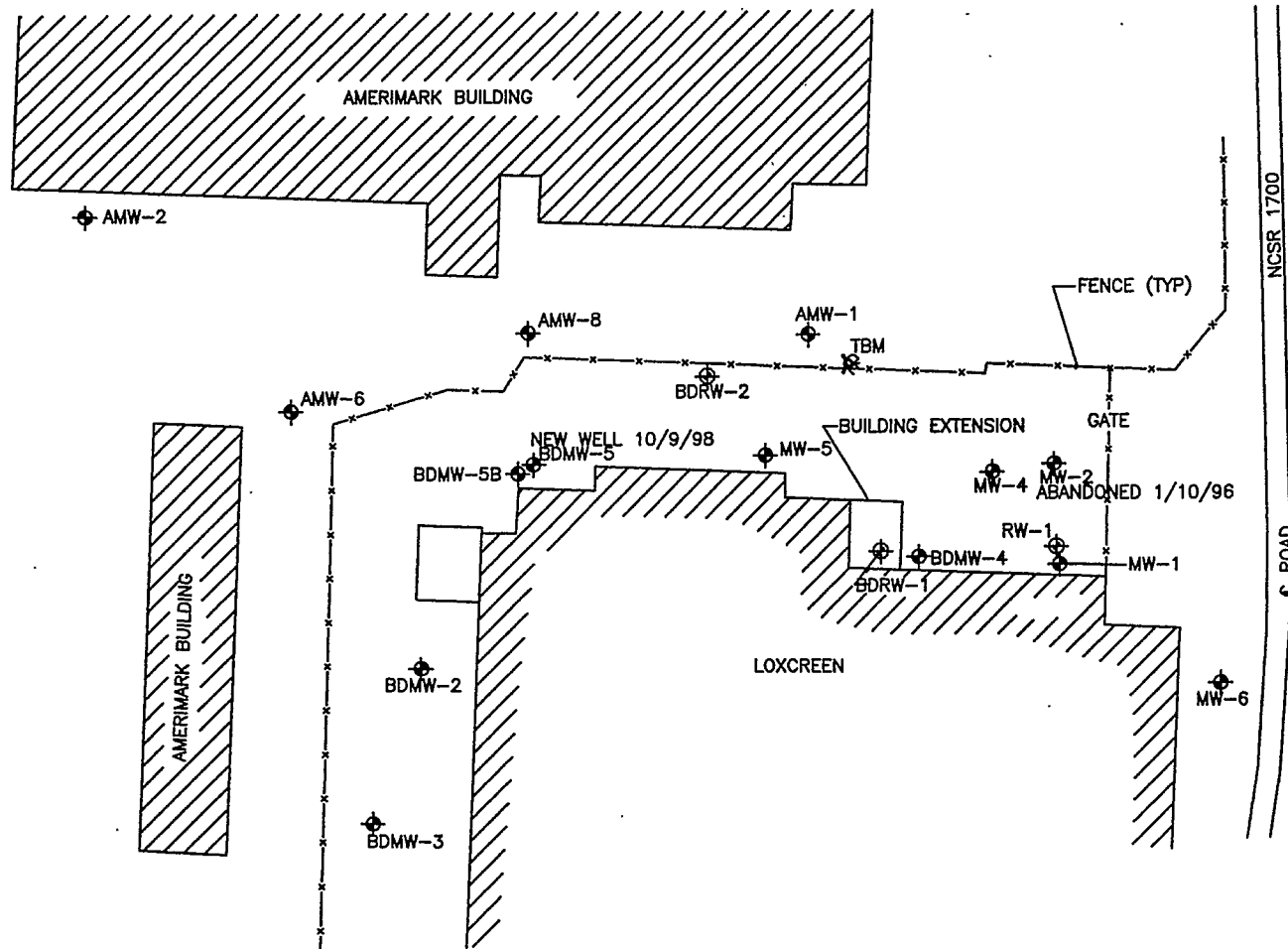
SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET

**Sherrill Environmental, Inc.**  
Environmental and Geologic Services  
RALEIGH, NORTH CAROLINA

SITE LOCATION MAP  
THE LOXCREEN COMPANY  
ROXBORO, NORTH CAROLINA

DATE: MAY 1999      FIGURE: 1





#### LEGEND

- ◆ MW-4 MONITORING WELL
- ◆ RW-1 RECOVERY WELL

DATE: MARCH 2003

DESIGN by: J.S.

DWG by: LOT

SCALE: 1"=100'

loxcreen1\_LT005

#### SHERRILL ENVIRONMENTAL, INC.

7309 Still Pond Ct. • Raleigh, NC • 27613

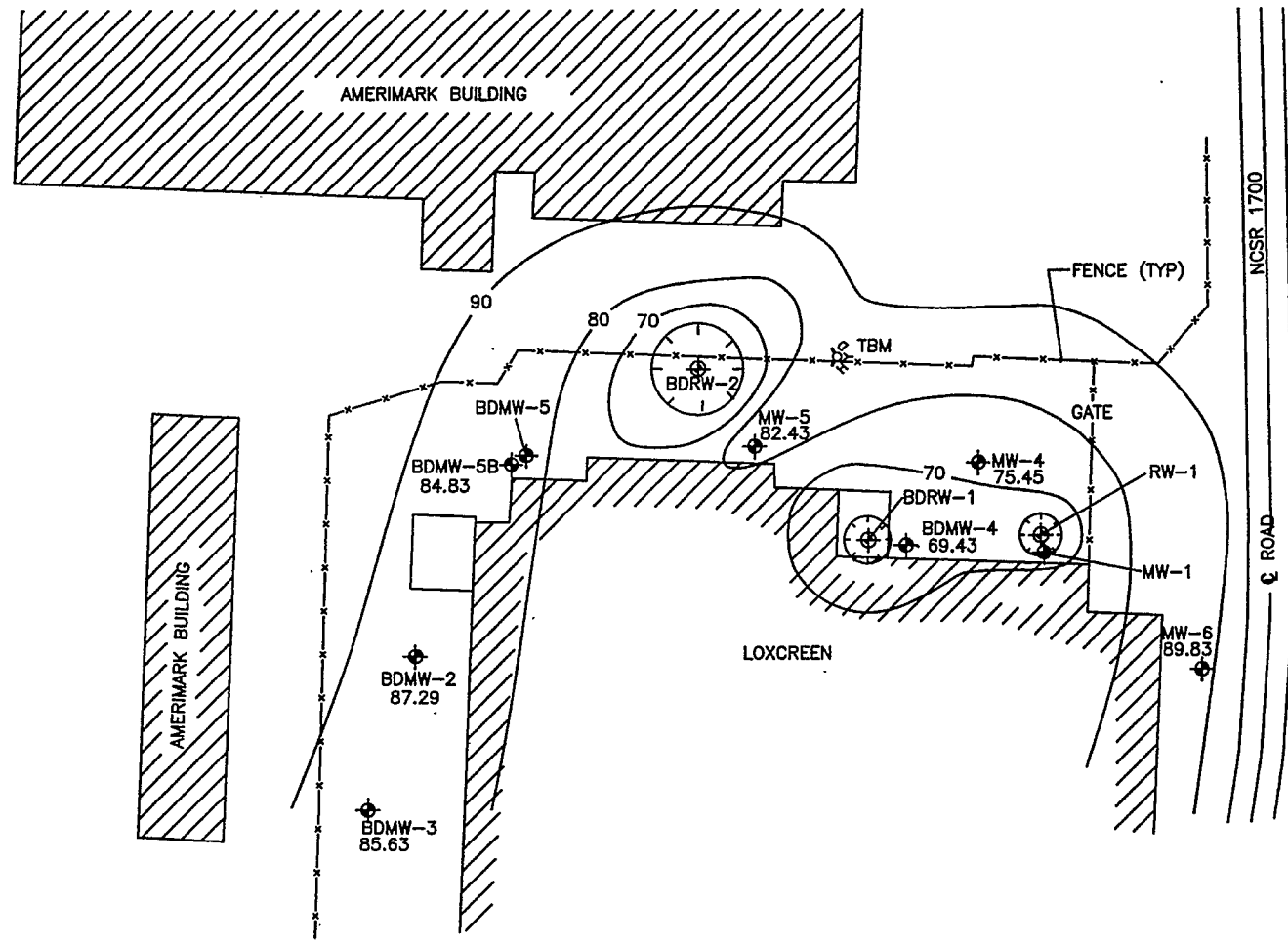
Tel. (919) 420-7822

Fax (919) 571-0757

E-Mail Roxchem@aol.com

LOXCREEN-ROXBORO, NC

FIGURE 2  
SITE MAP





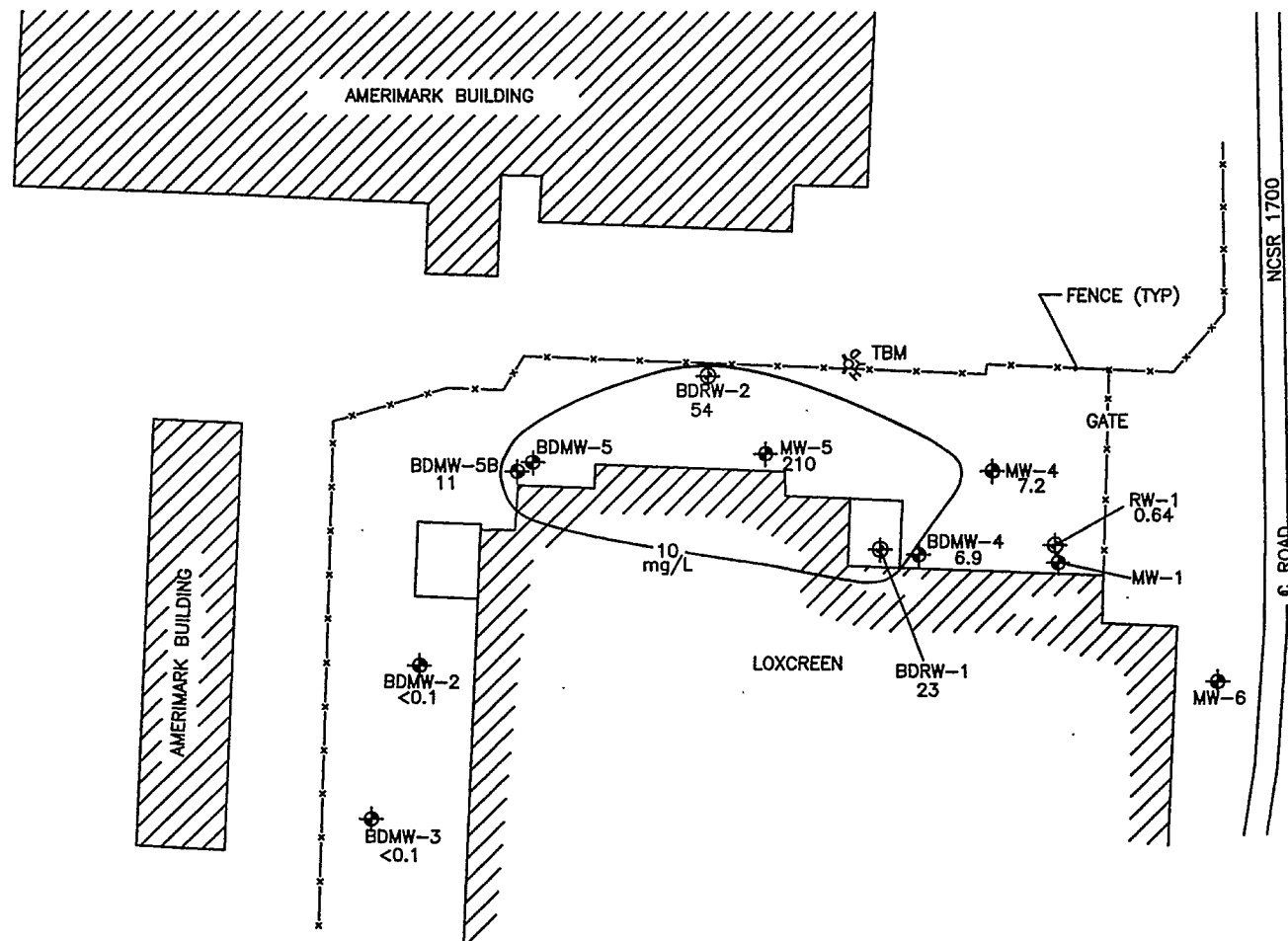
**LEGEND**

- ⊕ MW-4 MONITORING WELL
- ⊕ RW-1 RECOVERY WELL

**NOTE:**  
ELEVATIONS ARE RELATIVE TO A SITE BENCHMARK  
ASSIGNED AN ELEVATION.

loxcreen1\_LT006

	DATE: SEPTEMBER 2003		<b>LOXCREEN-ROXBORO, NC</b>	
	DESIGN by: J.S.		<b>FIGURE 3</b> <b>POTENTIOMETRIC SURFACE MAP</b> (9/8/03)	
	DWG by: LOT			
	SCALE: 1"=100'			
<b>SHERRILL ENVIRONMENTAL, INC.</b> 7309 Still Pond Ct. • Raleigh, NC • 27613 Tel. (919) 420-7822 Fax (919) 571-0757 E-Mail Roxchem@aol.com				



#### LEGEND



MONITORING WELL  
RECOVERY WELL

**NOTE:**  
NITRATE CONCENTRATIONS IN mg/L  
NCAC 2L STANDARD FOR NITRATE IS 10 mg/L

loxcreen1\_LT007

DATE: SEPTEMBER 2003

DESIGN by: J.S.

DWG by: LOT

SCALE: 1"=100'

0 100 150 200 250 300

**SHERRILL ENVIRONMENTAL, INC.**

7309 Still Pond Ct. • Raleigh, NC • 27613

Tel. (919) 420-7822 Fax (919) 571-0757 E-Mail Roxchem@aol.com

**LOXCREEN-ROXBORO, NC**

**FIGURE 4**  
**NITRATE CONCENTRATION MAP**  
(9/8/03)

Environmental Conservation Laboratories, Inc.  
1015 Passport Way  
Cary, North Carolina 27513-2042  
919 / 677-1669  
Fax 919 / 677-9846  
www.encolabs.com



CLIENT : Sherrill Environmental, Inc.  
ADDRESS: 7309 Still Pond Road  
Raleigh, NC 27613

REPORT # : CRY14562  
DATE SUBMITTED: September 8, 2003  
DATE REPORTED : September 11, 2003

PAGE 1 OF 8

ATTENTION: Mr. Jack Sherrill

#### SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

REFERENCE: LOXCREEN COMPANY

Loxcreen Company

09/08/03

CRY14562-1	:	BDMW-2	@	13:30
CRY14562-2	:	BDMW-3	@	13:50
CRY14562-3	:	BDMW-4	@	11:50
CRY14562-4	:	BDMW-5B	@	13:00
CRY14562-5	:	MW-4	@	11:15
CRY14562-6	:	MW-5	@	12:30
CRY14562-7	:	BDRW-1	@	14:00
CRY14562-8	:	BDRW-2	@	14:20

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. This data has been produced in accordance with NELAC Standards (July, 1999). This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

PROJECT MANAGER

A handwritten signature in cursive script that reads "Amy R. Harris".  
\_\_\_\_\_  
Amy R. Harris

ENCO LABORATORIES

REPORT # : CRY14562  
DATE REPORTED: September 11, 2003  
REFERENCE : LOXCREEN COMPANY  
PROJECT NAME : Loxcreen Company

PAGE 2 OF 8

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDMW-2</u>	<u>BDMW-3</u>	<u>Units</u>
Nitrate-N	0.10 U	0.10 U	mg/L
Date Analyzed	09/09/03 15:06	09/09/03 15:27	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY14562  
DATE REPORTED: September 11, 2003  
REFERENCE : LOXCREEN COMPANY  
PROJECT NAME : Loxcreen Company

PAGE 3 OF 8

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDMW-4</u>	<u>BDMW-5B</u>	<u>Units</u>
Nitrate-N	6.9	11	mg/L
Date Analyzed	09/09/03 15:47	09/09/03 16:08	

ENCO LABORATORIES

REPORT # : CRY14562

DATE REPORTED: September 11, 2003

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 4 OF 8

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>MW-4</u>	<u>MW-5</u>	<u>Units</u>
Nitrate-N	7.2	210	mg/L
Date Analyzed	09/09/03 16:28	09/09/03 20:55	

ENCO LABORATORIES

REPORT # : CRY14562

DATE REPORTED: September 11, 2003

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 5 OF 8

RESULTS OF ANALYSIS

EPA METHOD 300 -

Anions by IC

	<u>BDRW-1</u>	<u>BDRW-2</u>	<u>Units</u>
Nitrate-N	23	54	mg/L
Date Analyzed	09/09/03 17:09	09/09/03 17:30	



ENCO LABORATORIES

REPORT # : CRY14562

DATE REPORTED: September 11, 2003

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 6 OF 8

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

LAB BLANK

Units

Nitrate-N  
Date Analyzed

0.10 U  
09/09/03 10:11

mg/L

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY14562

DATE REPORTED: September 11, 2003

REFERENCE : LOXCREEN COMPANY

PROJECT NAME : Loxcreen Company

PAGE 7 OF 8

LABORATORY CERTIFICATIONS

Laboratory Certification: NCDENR:591

All analyses reported with this project were analyzed by the facility indicated unless identified below.

PARAMETER

Nitrate, EPA Method 300

LAB CERT #'s

NCDENR:424

ENCO LABORATORIES

REPORT # : CRY14562  
 DATE REPORTED: September 11, 2003  
 REFERENCE : LOXCREEN COMPANY  
 PROJECT NAME : Loxcreen Company

PAGE 8 OF 8

QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>MS/MSD/LCS</u>	<u>ACCEPT</u> <u>LIMITS</u>	<u>% RPD</u> <u>MS/MSD</u>	<u>ACCEPT</u> <u>LIMITS</u>
EPA Method 300 Nitrate-N	* / * / 98	40-152	*	23

\* = MS/MSD/RPD unavailable due to high original sample concentration:  
 < = Less Than  
 MS = Matrix Spike  
 MSD = Matrix Spike Duplicate  
 LCS = Laboratory Control Standard  
 RPD = Relative Percent Difference



# ENVIRONMENTAL CONSERVATION LABORATORIES

4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive  
Orlando, Florida 32824-8529  
Ph. (407) 826-5314 • Fax (407) 850-6945

1015 Passport Way  
Cary, North Carolina 27513  
Ph. (919) 677-1669 • Fax (919) 677-9846

QSARF # P11894

P11894

ENCO CompQAP No.: 960038G/0

## CHAIN OF CUSTODY RECORD

PROJECT REFERENCE <b>Loxcren Company</b>		LOXCREN COMPANY		P.O. NUMBER <b>03-42</b>		MATRIX TYPE		REQUIRED ANALYSIS		PAGE <b>1</b> OF <b>1</b>	
PROJECT LOC. (State) <b>NC</b>	SAMPLER(S) NAME <b>John Sherrill</b>			PHONE <b>(919)-420-7822</b>		<div>SURFACE WATER</div> <div>GROUND WATER</div> <div>WASTEWATER</div> <div>DRINKING WATER</div> <div>SOIL/SOLID/SEDIMENT</div> <div>NONAQUEOUS LIQUID (oil, solvent, etc.)</div> <div>AIR</div> <div>SLUDGE</div> <div>OTHER</div>		<div>NITRATE300</div> <div>624VATCMCM</div>		<div><input checked="" type="checkbox"/> STANDARD REPORT DELIVERY</div> <div><input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge)</div> <div>Date Due: _____</div>	
CLIENT NAME <b>Sherrill Environmental, Inc.</b>			CLIENT PROJECT MANAGER <b>Mr. Jack Sherrill</b>								
CLIENT ADDRESS (CITY, STATE, ZIP) <b>7309 Still Pond Road Raleigh, NC 27613</b>											
SAMPLE											
STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION			PRESERVATIVE		REMARKS	
1	9/8/03	1330			BDMW-2	X				1 0	
2		1350			BDMW-3	X				1 0	
3		1150			BDMW-4	X				1 0	
4		1300			BDMW-5B	X				1 0	
5		1115			MW-4	X				1 0	
6		1230			MW-5	X				1 0	
7		1400			BDRW-1	X				1 0	
8	↓	1420			BDRW-2	X				1 0	
9					<del>RW-1</del>	X				<del>1 2</del>	
10											
11											
12											
13											
14											
SAMPLE KIT PREPARED BY: <input type="checkbox"/> JACKSONVILLE <input type="checkbox"/> ORLANDO		DATE <b>9/8/03</b>	TIME <b>1520</b>	RELINQUISHED BY: (SIGNATURE) <b>John Sherrill</b>		DATE	TIME	RECEIVED BY: (SIGNATURE) <b>Amy Harris</b>		DATE <b>9/8/03</b>	TIME <b>15:20</b>
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
RECEIVED FOR LABORATORY BY: (SIGNATURE) <b>Byron Jennings</b>		DATE <b>9/8/03</b>	TIME <b>15:47</b>	CUSTODY INTACT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	ENCO LOG NO. <b>C1414562</b>	REMARKS					



**SHERRILL ENVIRONMENTAL, INC.**  
Environmental and Geologic Services

March 24, 2003

Mr. Jay Zimmerman  
NCDENR  
Groundwater Section – Raleigh Regional Office  
Post Office Box 27687  
Raleigh, NC 27611

Subject: Semiannual Monitoring for Nitrate  
March 10, 2003  
Incident No. 9179 (Shared)  
The Loxcreen Company  
Roxboro, North Carolina



Dear Mr. Zimmerman:

Sherrill Environmental, Inc. (Sherrill), on behalf of The Loxcreen Company (Loxcreen), conducted semiannual groundwater monitoring on March 10, 2003, at the Roxboro, North Carolina facility (Figure 1). Groundwater samples were collected from six monitoring wells and three recovery wells (Figure 2). The nine groundwater samples were analyzed for nitrate. In addition, one groundwater sample was collected from recovery well RW-1 and analyzed for volatile organic compounds (BTEX).

**Field Activities**

Groundwater sampling was performed by Sherrill personnel on March 10, 2003. Activities were initiated by unlocking and opening the monitoring wells to allow the groundwater levels to equilibrate with atmospheric pressure. The depth to water was measured in each monitoring well with an electronic water level indicator (Table 1). Water levels were not measured in the recovery wells. Well volumes were calculated, and each well was purged a minimum of three volumes. Purging and sampling were performed with a new disposable polyethylene bailer for each monitoring well. Groundwater samples were collected from the three recovery wells at each well's discharge sampling port. All samples were collected in laboratory-supplied glassware, placed in an ice-filled cooler, and transferred to a laboratory certified by NCDENR using standard, chain-of-custody procedures.

**Data Analysis**

A potentiometric surface map was generated using the groundwater level measurements obtained on March 10, 2003 (Figure 3). The data suggest a significant radius of influence for recovery wells BDRW-1, BDRW-2, and RW-1. The recovery wells appear to be controlling the migration of the nitrate contaminant plume. The winter of 2002-2003 had

greater than normal amounts of precipitation. This was evident in the site groundwater table as the March 2003 groundwater elevations were an average of 8.14 feet higher than the measurements obtained in September 2002.

The nitrate analysis of the groundwater samples collected on March 10, 2003 is summarized on Table 2, and the laboratory report is attached. The groundwater samples contained nitrate ( $\text{NO}_3$ ) in concentrations that ranged from less than the detection limit of 0.1 mg/L to 1,100 mg/L. Four of the nine groundwater samples contained concentrations of nitrate above the NCAC 2L Standard of 10 mg/L (Figure 4). The groundwater sample from MW-5 had a concentration of nitrate at 1,100 mg/L. The groundwater samples from recovery wells BDRW-1 and BDRW-2 had concentrations of nitrate at 12 mg/L and 47 mg/L, respectively.

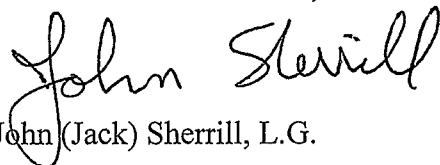
In summary, the groundwater plume of nitrate contamination appears to be limited to onsite. Only two of the six monitoring wells had a groundwater sample with nitrate concentrations above the NCAC 2L Standard. The recovery wells appear to be controlling the migration of the plume. The recovery wells are functioning to clean the site as the nitrate concentrations in the water being removed is above the NCAC 2L Standard. The higher concentration of nitrate (1,100 mg/L) observed in the groundwater sample from MW-5 is probably due to the higher groundwater table. The higher than normal groundwater table saturated and leached nitrate from the contaminated soils. The dissolution of nitrate from the soil produced a temporal spike in the groundwater concentrations of nitrate.

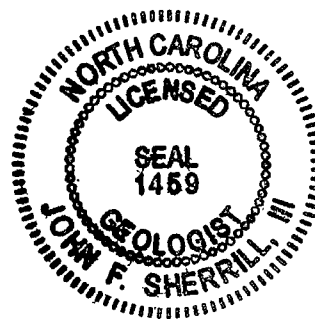
The groundwater sample collected from RW-1 was also analyzed for volatile organic compounds (BTEX) and the gasoline additive MTBE. No gasoline-related compounds were present at or above the detection limit of 1 ug/L.

The next monitoring event for nitrate is scheduled for September 2003. Please contact us at (919) 420-7822 or Mr. Charles Dix of Loxcreen at (336) 599-9261, if you have any questions or need additional information.

Sincerely,

**Sherrill Environmental, Inc.**

  
John (Jack) Sherrill, L.G.



CC: Mr. Charles Dix, Plant Engineer, The Loxcreen Company, Inc.  
Mr. Brent Theiling, Engineering Manager, The Loxcreen Company, Inc.

**TABLE 1**  
**GROUNDWATER TABLE MEASUREMENTS**  
**LOXCREEN COMPANY, ROXBORO, NC**

**Sherrill Environmental, Inc.**

	TOC	3/29/1999		9/14/1999		3/20/2000		9/11/2000		3/12/2001		9/17/2001		3/11/2002		9/23/2002		3/10/2003	
	Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.
BDMW-2	97.34	14.63	82.71	19.44	77.90	17.60	79.74	15.70	81.64	15.02	82.32	14.22	83.12	14.93	82.41	16.61	80.73	11.09	86.25
BDMW-3	97.56	20.37	77.19	22.65	74.91	18.98	78.58	20.72	76.84	16.97	80.59	20.02	77.54	17.67	79.89	20.92	76.64	12.96	84.60
BDMW-4	97.96	38.12	59.84	40.54	57.42	35.72	62.24	36.58	61.38	35.17	62.79	40.08	57.88	37.78	60.18	39.57	58.39	32.24	65.72
BDMW-5	96.85	19.86	76.99	24.93	71.92	NM		NM		NM		NM		NM		NM		NM	
BDMW-5B	96.65					20.07	76.58	24.23	72.42	19.03	77.62	21.87	74.78	18.11	78.54	23.18	73.47	12.85	83.80
MW-1	98.07	NM		20.51	77.56	NM		NM		NM		NM		NM		NM		NM	
MW-4	97.76	27.52	70.24	30.54	67.22	29.24	68.52	30.23	67.53	28.72	69.04	30.32	67.44	29.36	68.40	30.47	67.29	25.88	71.88
MW-5	97.45	18.87	78.58	25.47	71.98	22.50	74.95	24.93	72.52	22.98	74.47	23.01	74.44	22.31	75.14	25.21	72.24	17.33	80.12
MW-6	104.36							30.77	73.59	NM		30.40	73.96	23.34	81.02	28.76	75.60	15.38	88.98
AM-1	94.47	15.34	79.13	21.90	72.57	19.05	75.42	NM		NM		NM		NM		NM		NM	
AM-6	88.24	5.14	83.10	9.48	78.76	NM		6.14	82.10	NM		NM		NM		NM		NM	
AMW-8	92.89					10.32	82.57	NM		NM		NM		NM		NM		NM	
BDRW-1	97.24	NM		NM		NM		NM		NM		NM		NM		NM		NM	
BDRW-2	95.73	NM		NM		NM		NM		NM		NM		NM		NM		NM	
RW-1	97.41	NM		NM		NM		NM		NM		NM		NM		NM		NM	

Elevations are relative to a site benchmark assigned an elevation of 100 feet.  
 TOC = Top of casing  
 Depth = Depth to groundwater from TOC  
 NM = Not Measured  
 All measurements are in feet.

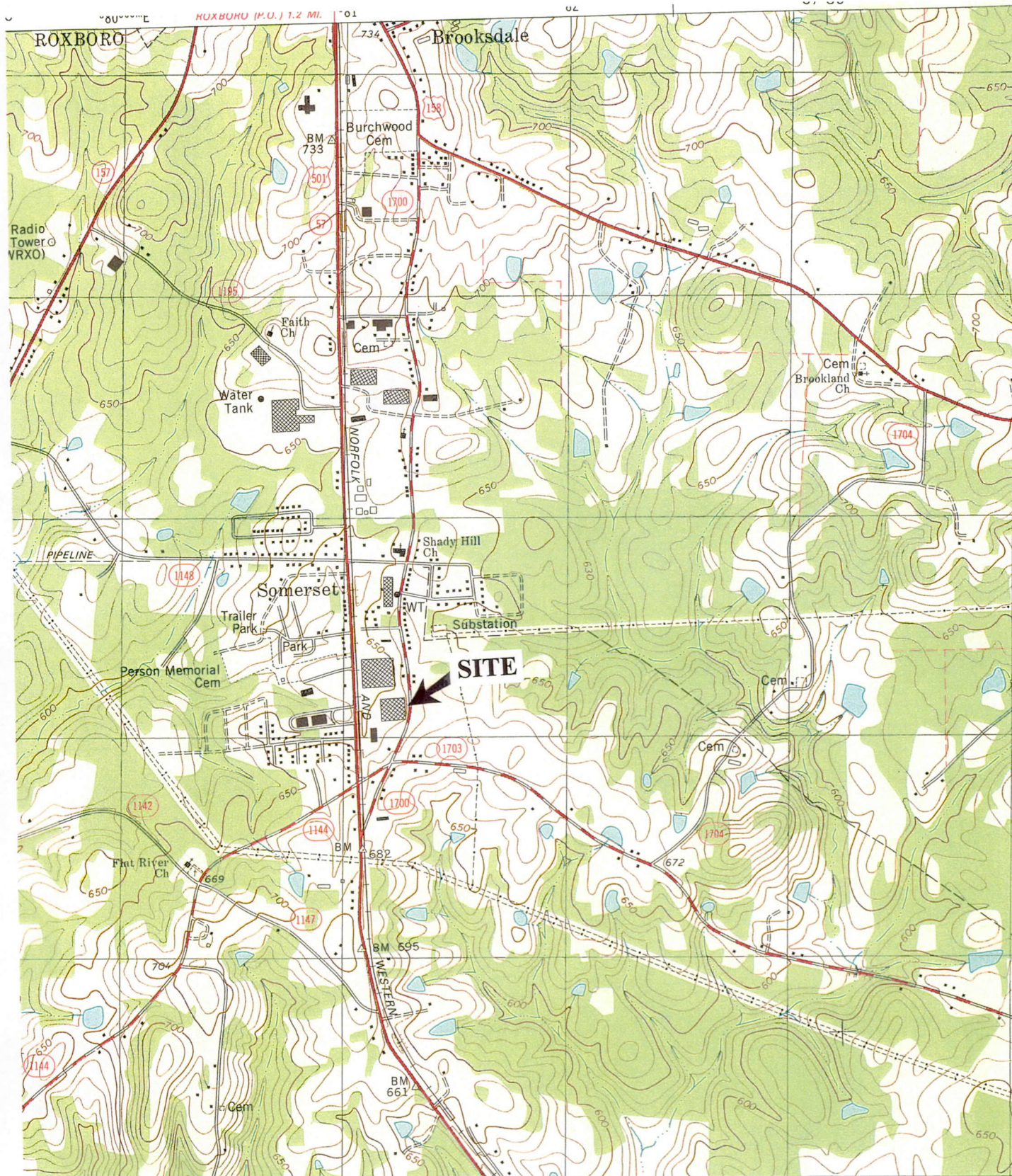
**TABLE 2**  
**GROUNDWATER ANALYSES**  
**LOXCREEN COMPANY**

**Sherrill Environmental, Inc.**

	Mar-96	Sep-96	Mar-97	Mar-98	Sep-98	Mar-99	Sep-99	Mar-00	Sep-00	Mar-01	Sep-01	Mar-02	Sep-02	Mar-03
	Nitrate Concentrations in mg/L													
BDMW-2			0.11	5.9	<0.4	<0.02	<0.02	0.38	<0.02	<0.02	<0.02	0.02	<0.1	<0.2
BDMW-3			NS	NS	NS	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.1	<0.2
BDMW-4	<b>11.9</b>	1.8	6.7	<b>13.0</b>	2.6	9.4	<b>12</b>	8.4	4.8	0.48	<b>15</b>	6	<b>33</b>	7.1
BDMW-5			NS	NS	<b>11</b>	<0.02	<0.02	NS	NS	NS	NS	NS	NS	NS
BDMW-5B								1.3	0.81	5.3	0.14	3.2	<0.1	<b>12</b>
MW-4	<b>12.2</b>	<b>11.7</b>	3.4	<b>15.7</b>	4.6	7.9	5.3	8.8	2.5	8.3	3.3	<b>10</b>	3.4	8.7
MW-5	<b>17.5</b>	<b>137</b>	<b>187</b>	<b>18.6</b>	<b>240</b>	<b>460</b>	<b>360</b>	<b>520</b>	<b>400</b>	<b>430</b>	<b>520</b>	<b>450</b>	<b>240</b>	<b>1,100</b>
AMW-1	1.4	0.2	1.1	1.7	3.2	1.8	1.5	2	NS	NS	NS	NS	NS	NS
AMW-6	5.5	1.4	5.6	3.2	3.4	1.7	NS	NS	1.2	NS	NS	NS	NS	NS
AMW-8								<0.02	NS	NS	NS	NS	NS	NS
BDRW-1		<b>21.5</b>	<b>10.2</b>	<b>18.6</b>	<b>33</b>	<b>160</b>	<b>35</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>38</b>	<b>27</b>	<b>52</b>	<b>12</b>
BDRW-2		<b>22</b>	<b>16</b>	<0.1	<b>93</b>	<b>26</b>	<b>26</b>	<b>37</b>	<b>38</b>	<b>26</b>	<b>56</b>	<b>55</b>	<b>79</b>	<b>47</b>
RW-1			0.5	0.6	0.5	0.26	0.25	0.37	0.37	0.27	0.33	0.66	0.38	0.64

Bold values are above the 10 mg/L NCAC 2L Standard listed for Nitrate.





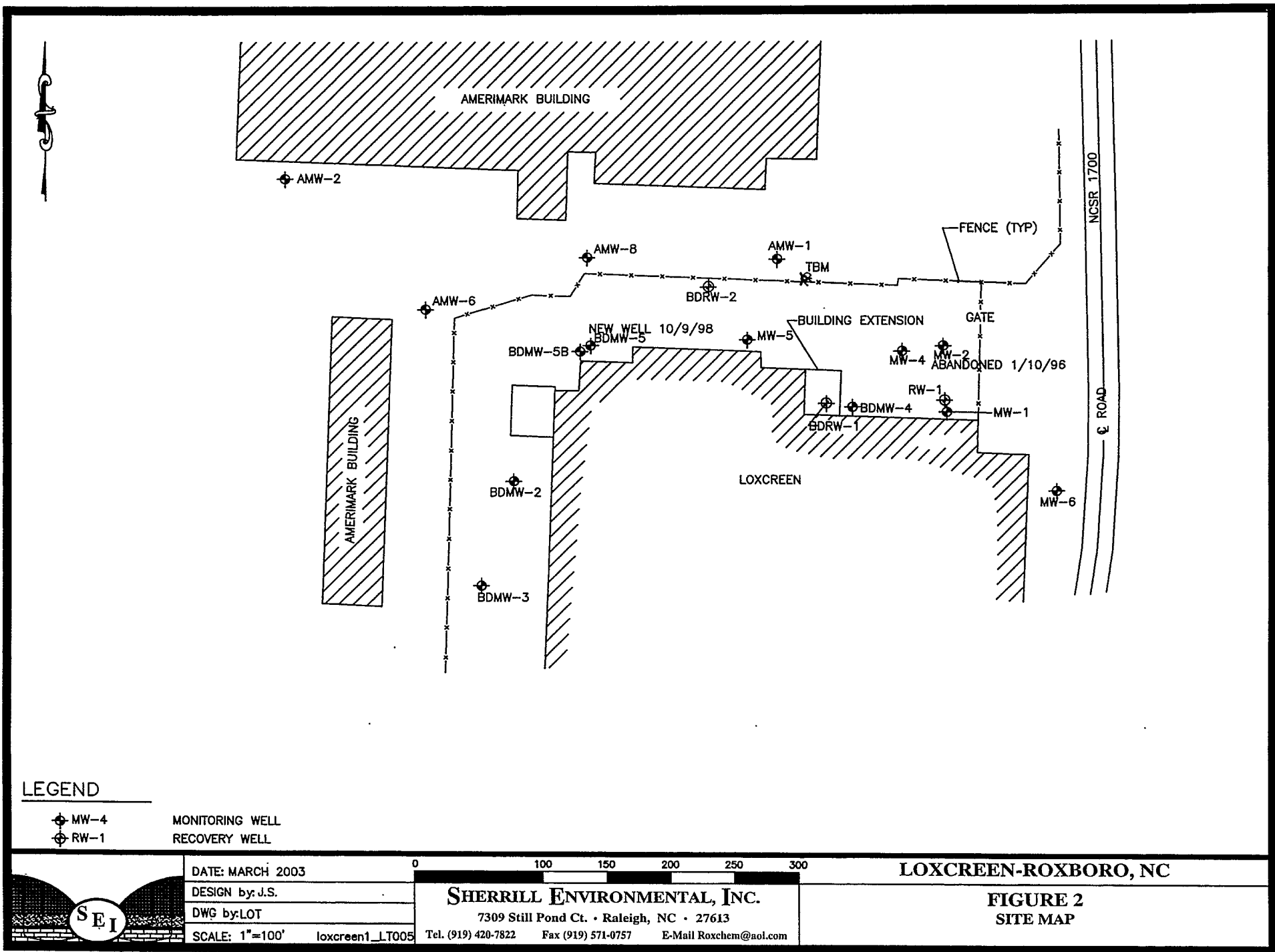
SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET

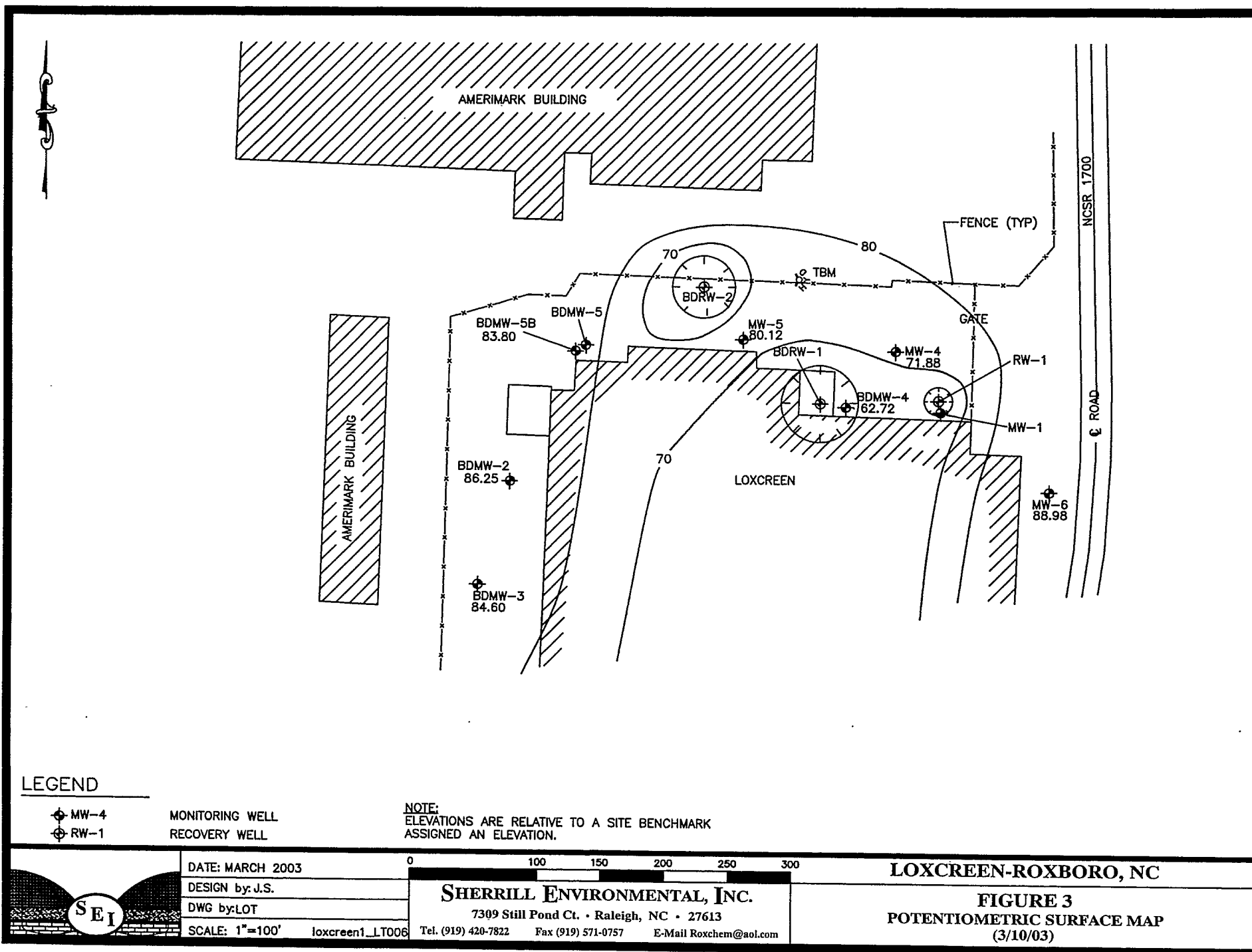
**Sherrill Environmental, Inc.**  
Environmental and Geologic Services  
RALEIGH, NORTH CAROLINA

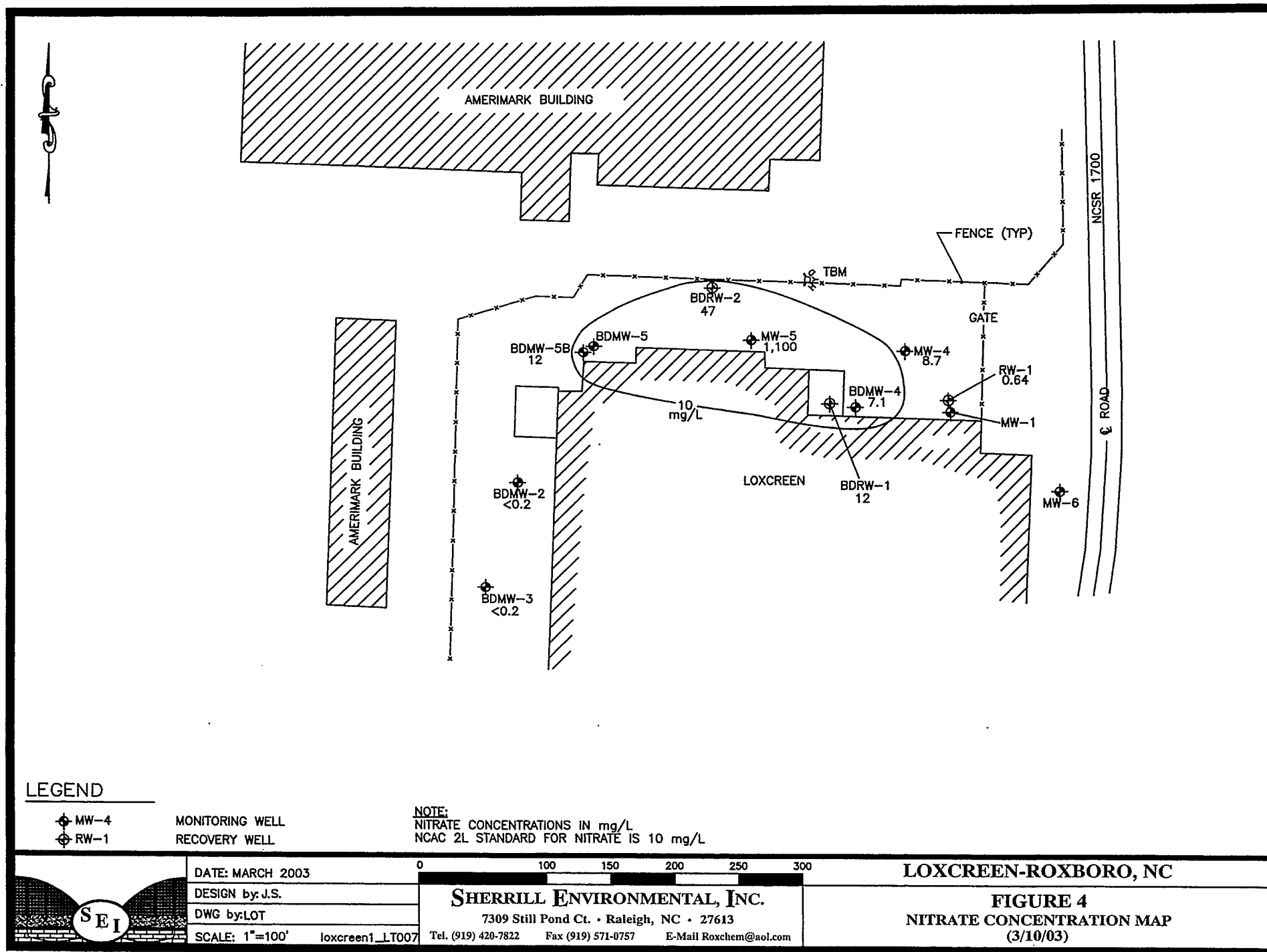
SITE LOCATION MAP  
THE LOXCREEN COMPANY  
ROXBORO, NORTH CAROLINA

DATE: MAY 1999 FIGURE: 1









Environmental Conservation Laboratories, Inc.  
1015 Passport Way  
Cary, North Carolina 27513  
919/677-1669  
Fax 919/677-9846  
www.encolabs.com



CLIENT : Sherrill Environmental, Inc.  
ADDRESS: 7309 Still Pond Road  
Raleigh, NC 27613

REPORT # : CRY13760  
DATE SUBMITTED: March 11, 2003  
DATE REPORTED : March 14, 2003

PAGE 1 OF 8

ATTENTION: Mr. Jack Sherrill

#### SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

REFERENCE: 03-09

Loxscreen Project

03/10/03

#1	-	BDMW-2	@	13:50
#2	-	BDMW-3	@	14:15
#3	-	BDMW-4	@	11:45
#4	-	BDMW-5B	@	13:00
#5	-	MW-4	@	10:45
#6	-	MW-5	@	12:10
#7	-	BDRW-1	@	13:30
#8	-	BDRW-2	@	13:40
#9	-	RW-1	@	13:20

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. This data has been produced in accordance with NELAC Standards (July, 1999). This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

PROJECT MANAGER

A handwritten signature in cursive script that reads "Amy R. Harris".  
\_\_\_\_\_  
Amy R. Harris

ENCO LABORATORIES

REPORT # : CRY13760

DATE REPORTED: March 14, 2003

REFERENCE : 03-09

PROJECT NAME : Loxcreen Project

PAGE 2 OF 8

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDMW-2</u>	<u>BDMW-3</u>	<u>Units</u>
Nitrate-N	0.20 U	0.20 U	mg/L
Date Analyzed	03/12/03 13:39	03/12/03 13:59	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY13760

DATE REPORTED: March 14, 2003

REFERENCE : 03-09

PROJECT NAME : Loxcreen Project

PAGE 3 OF 8

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDMW-4</u>	<u>BDMW-5B</u>	<u>Units</u>
Nitrate-N	7.1	12	mg/L
Date Analyzed	03/12/03 11:27	03/12/03 12:17	

ENCO LABORATORIES

REPORT # : CRY13760

DATE REPORTED: March 14, 2003

REFERENCE : 03-09

PROJECT NAME : Loxcreen Project

PAGE 4 OF 8

RESULTS OF ANALYSIS

EPA METHOD 300 -

Anions by IC

	<u>MW-4</u>	<u>MW-5</u>	<u>Units</u>
Nitrate-N	8.7	1100	mg/L
Date Analyzed	03/12/03 11:06	03/12/03 11:56	



ENCO LABORATORIES

REPORT # : CRY13760

DATE REPORTED: March 14, 2003

REFERENCE : 03-09

PROJECT NAME : Loxscreen Project

PAGE 5 OF 8

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDRW-1</u>	<u>BDRW-2</u>	<u>Units</u>
Nitrate-N	12	47	mg/L
Date Analyzed	03/12/03 12:58	03/12/03 13:18	

ENCO LABORATORIES

REPORT # : CRY13760

DATE REPORTED: March 14, 2003

REFERENCE : 03-09

PROJECT NAME : Loxcreen Project

PAGE 6 OF 8

RESULTS OF ANALYSIS

EPA METHOD 624 -  
VOLATILE ORGANICS

	<u>RW-1</u>	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	1.0 U	1.0 U	ug/L
Benzene	1.0 U	1.0 U	ug/L
Toluene	1.0 U	1.0 U	ug/L
Chlorobenzene	1.0 U	1.0 U	ug/L
Ethylbenzene	1.0 U	1.0 U	ug/L
m-Xylene & p-Xylene	2.0 U	2.0 U	ug/L
o-Xylene	1.0 U	1.0 U	ug/L
1,3-Dichlorobenzene	1.0 U	1.0 U	ug/L
1,4-Dichlorobenzene	1.0 U	1.0 U	ug/L
1,2-Dichlorobenzene	1.0 U	1.0 U	ug/L
Isopropyl Ether	1.0 U	1.0 U	ug/L

Surrogate:

	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Dibromofluoromethane	92	90	73-138
D8-Toluene	89	89	77-118
Bromofluorobenzene	88	88	70-130
Date Analyzed	03/12/03 06:58	03/11/03 11:00	

EPA METHOD 300 -  
Anions by IC

	<u>RW-1</u>	<u>LAB BLANK</u>	<u>Units</u>
Nitrate-N	0.64	0.10 U	mg/L
Date Analyzed	03/12/03 12:37	03/12/03 10:46	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY13760

DATE REPORTED: March 14, 2003

REFERENCE : 03-09

PROJECT NAME : Loxcreen Project

PAGE 7 OF 8

LABORATORY CERTIFICATIONS

Laboratory Certification: NCDENR:591

All analyses reported with this project were analyzed by the facility indicated unless identified below.

PARAMETER

Nitrate, EPA Method 300

LAB CERT #'s

NCDENR:424

ENCO LABORATORIES

REPORT # : CRY13760

DATE REPORTED: March 14, 2003

REFERENCE : 03-09

PROJECT NAME : Loxscreen Project

PAGE 8 OF 8

QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY MS/MSD/LCS</u>	<u>ACCEPT LIMITS</u>	<u>% RPD MS/MSD</u>	<u>ACCEPT LIMITS</u>
<u>EPA Method 624</u>				
1,1-Dichloroethene	100/ 93/ 95	36-177	7	30
Benzene	89/ 90/ 87	53-150	1	23
Trichloroethene	87/ 88/ 85	64-124	1	25
Toluene	90/ 91/ 92	40-161	1	23
Chlorobenzene	90/ 91/ 92	44-128	1	22
<u>EPA Method 300</u>				
Chloride	103/102/ 97	51-149	<1	26
Nitrite-N	119/118/ 93	48-161	<1	22
Nitrate-N	121/122/104	40-152	<1	23
Sulfate	97/ 97/100	47-148	<1	25

< = Less Than

MS = Matrix Spike

MSD = Matrix Spike Duplicate

LCS = Laboratory Control Standard

RPD = Relative Percent Difference



# ENVIRONMENTAL CONSERVATION LABORATORIES

QSARF # P11625

4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive  
Orlando, Florida 32824-8529  
Ph. (407) 826-5314 • Fax (407) 850-6945

1015 Passport Way  
Cary, North Carolina 27513  
Ph. (919) 677-1669 • Fax (919) 677-9846

ENCO CompQAP No.: 960038G/0

## CHAIN OF CUSTODY RECORD

PROJECT REFERENCE <b>Loxcreen Project</b>		PROJECT NO. <b>03-9</b>		P.O. NUMBER <b>9-Mar</b>		MATRIX TYPE		REQUIRED ANALYSIS		PAGE <b>1</b> OF <b>1</b>				
PROJECT LOC. (State) <b>NC</b>		SAMPLER(S) NAME <i>John Sherrill</i>		PHONE <b>(919)-420-7822</b>		<div>SURFACE WATER</div> <div>GROUND WATER</div> <div>WASTEWATER</div> <div>DRINKING WATER</div> <div>SOIL/SOLID/SEDIMENT</div> <div>NONAQUEOUS LIQUID (oil, solvent, etc.)</div> <div>AIR</div> <div>SLUDGE</div> <div>OTHER</div>		<div>NITRATE-300</div> <div>624/AROM/CM</div>		<input checked="" type="checkbox"/> STANDARD REPORT DELIVERY <input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge) Date Due: _____				
CLIENT NAME <b>Sherrill Environmental, Inc.</b>		CLIENT PROJECT MANAGER <b>Mr. Jack Sherrill</b>												
CLIENT ADDRESS (CITY, STATE, ZIP) <b>7309 Still Pond Road Raleigh, NC 27613</b>														
SAMPLE														
STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	PRESERVATIVE						REMARKS		
1	3/10/03	1350			BDMW-2	X					1 0			
2		1415			BDMW-3	X					1 0			
3		1145			BDMW-4	X					1 0			
4		1300			BDMW-5B	X					1 0			
5		1045			MW-4	X					1 0			
6		1210			MW-5	X					1 0			
7		1330			BDRW-1	X					1 0			
8		1340			BDRW-2	X					1 0			
9		1320			RW-1	X					1 2			
10														
11														
12														
13														
14														
SAMPLE KIT PREPARED BY: <input type="checkbox"/> JACKSONVILLE <input type="checkbox"/> ORLANDO					DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
RELINQUISHED BY: (SIGNATURE) <i>John Sherrill</i>					DATE 3/11/03	TIME 9:00	RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
RECEIVED BY: (SIGNATURE)					DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>Byron Gennard</i>					DATE 3/11/03	TIME 11:09	CUSTODY INTACT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	ENCO LOG NO. C2813760	REMARKS					

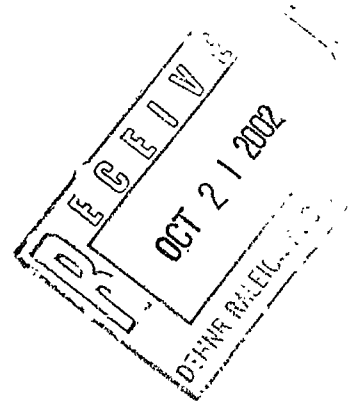


**SHERRILL ENVIRONMENTAL, INC.**  
Environmental and Geologic Services

October 21, 2002

Mr. Jay Zimmerman  
NCDENR  
Groundwater Section – Raleigh Regional Office  
Post Office Box 27687  
Raleigh, NC 27611

Subject: Semiannual Monitoring for Nitrate  
September 23, 2002  
Incident No. 9179 (Shared)  
The Loxcreen Company  
Roxboro, North Carolina



Dear Mr. Zimmerman:

Sherrill Environmental, Inc. (Sherrill), on behalf of The Loxcreen Company (Loxcreen), conducted semiannual groundwater monitoring on September 23, 2002, at the Roxboro, North Carolina facility (Figure 1). Groundwater samples were collected from six monitoring wells and three recovery wells (Figure 2). The nine groundwater samples were analyzed for nitrate. In addition, one groundwater sample was collected from recovery well RW-1 and analyzed for volatile organic compounds (BTEX).

#### **Field Activities**

Groundwater sampling was performed by Sherrill personnel on September 23, 2002. Activities were initiated by unlocking and opening the monitoring wells to allow the groundwater levels to equilibrate with atmospheric pressure. The depth to water was measured in each monitoring well with an electronic water level indicator (Table 1). Water levels were not measured in the recovery wells. Well volumes were calculated, and each well was purged a minimum of three volumes. Purging and sampling were performed with a new disposable polyethylene bailer for each monitoring well. Groundwater samples were collected from the three recovery wells at each well's discharge sampling port. All samples were collected in laboratory-supplied glassware, placed in an ice-filled cooler, and transferred to a laboratory certified by NCDENR using standard, chain-of-custody procedures.

#### **Data Analysis**

A potentiometric surface map was generated using the groundwater level measurements obtained on September 23, 2002 (Figure 3). The data suggest a significant radius of influence for recovery wells BDRW-1, BDRW-2, and RW-1. The recovery wells appear to be controlling the migration of the nitrate contaminant plume.

The nitrate analysis of the groundwater samples collected on September 23, 2002 is summarized on Table 2, and the laboratory report is attached. The groundwater samples contained nitrate ( $\text{NO}_3$ ) in concentrations that ranged from less than the detection limit of 0.1 mg/L to 240 mg/L. Four of the nine groundwater samples contained concentrations of nitrate above the NCAC 2L Standard of 10 mg/L (Figure 4). The groundwater sample from MW-5 had a concentration of nitrate at 240 mg/L. The groundwater samples from recovery wells BDRW-1 and BDRW-2 had concentrations of nitrate at 52 mg/L and 79 mg/L, respectively.

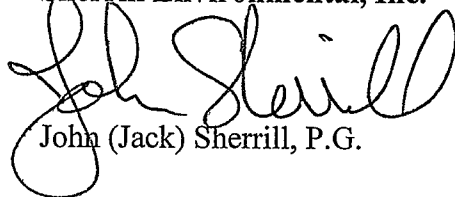
In summary, the groundwater plume of nitrate contamination appears to be limited to onsite. Only two of the six monitoring wells had a groundwater sample with nitrate concentrations above the NCAC 2L Standard. The recovery wells appear to be controlling the migration of the plume. The recovery wells are functioning to clean the site as the nitrate concentrations in the water being removed is above the NCAC 2L Standard.

The groundwater sample collected from RW-1 was also analyzed for volatile organic compounds (BTEX) and the gasoline additive MTBE. No gasoline-related compounds were present at or above the detection limit of 1 ug/L.

The next monitoring event for nitrate is scheduled for March 2003. Please contact us at (919) 420-7822 or Mr. Charles Dix of Loxcreen at (336) 599-9261, if you have any questions or need additional information.

Sincerely,

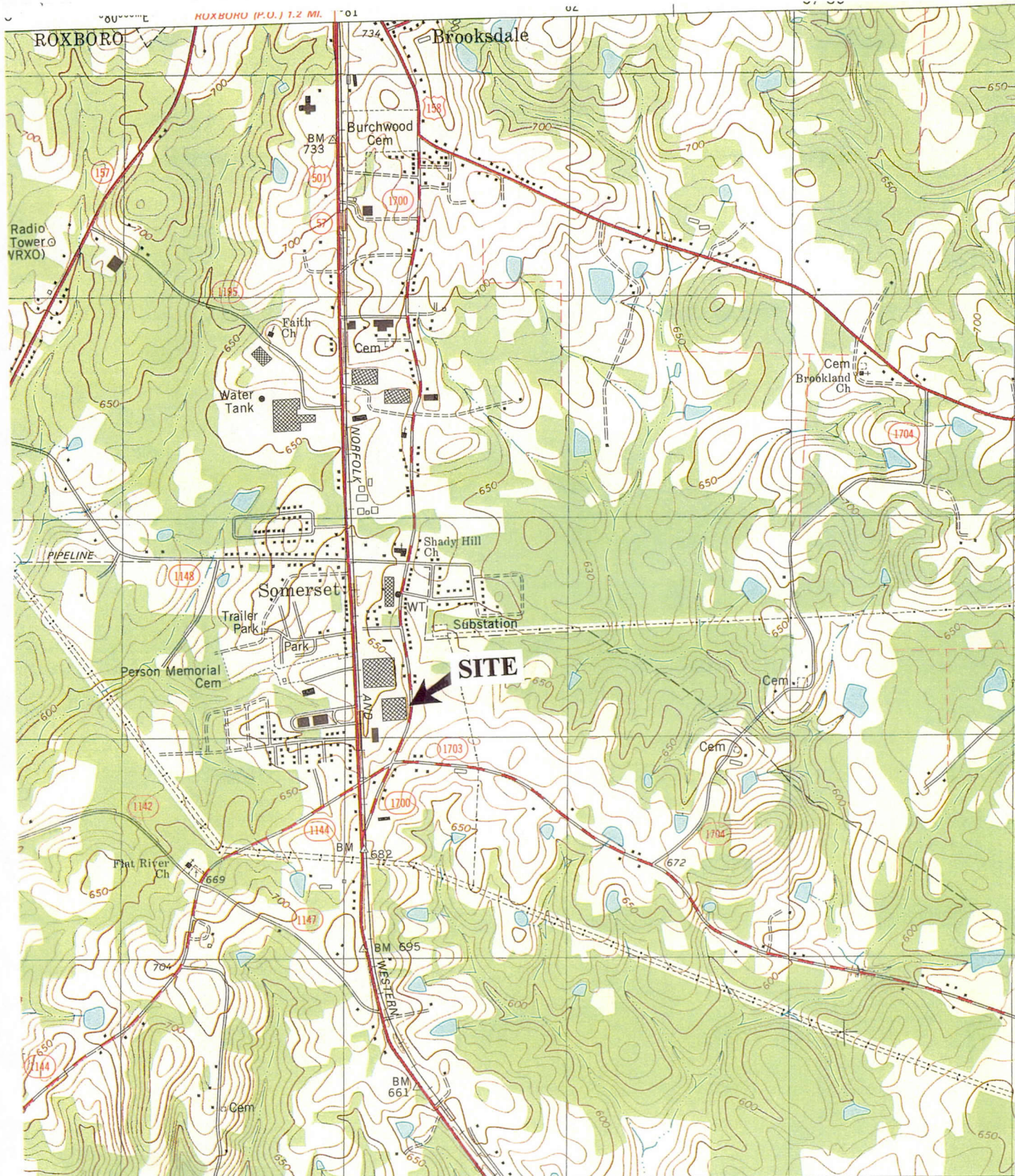
Sherrill Environmental, Inc.

  
John (Jack) Sherrill, P.G.



CC: Mr. Charles Dix, Plant Engineer, The Loxcreen Company, Inc.  
Mr. Brent Theiling, Engineering Manager, The Loxcreen Company, Inc.





SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET

**Sherrill Environmental, Inc.**  
Environmental and Geologic Services  
RALEIGH, NORTH CAROLINA

SITE LOCATION MAP  
THE LOXGREEN COMPANY  
ROXBORO, NORTH CAROLINA

DATE: MAY 1999 FIGURE: 1



**TABLE 1**  
**GROUNDWATER TABLE MEASUREMENTS**  
**LOXCREEN COMPANY, ROXBORO, NC**

**Sherrill Environmental, Inc.**

	TOC	3/29/1999		9/14/1999		3/20/2000		9/11/2000		3/12/2001		9/17/2001		3/11/2002		9/23/2002	
	Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.
BDMW-2	97.34	14.63	82.71	19.44	77.90	17.60	79.74	15.70	81.64	15.02	82.32	14.22	83.12	14.93	82.41	16.61	80.73
BDMW-3	97.56	20.37	77.19	22.65	74.91	18.98	78.58	20.72	76.84	16.97	80.59	20.02	77.54	17.67	79.89	20.92	76.64
BDMW-4	97.96	38.12	59.84	40.54	57.42	35.72	62.24	36.58	61.38	35.17	62.79	40.08	57.88	37.78	60.18	39.57	58.39
BDMW-5	96.85	19.86	76.99	24.93	71.92	NM		NM		NM		NM		NM		NM	
BDMW-5B	96.65					20.07	76.58	24.23	72.42	19.03	77.62	21.87	74.78	18.11	78.54	23.18	73.47
MW-1	98.07	NM		20.51	77.56	NM		NM		NM		NM		NM		NM	
MW-4	97.76	27.52	70.24	30.54	67.22	29.24	68.52	30.23	67.53	28.72	69.04	30.32	67.44	29.36	68.40	30.47	67.29
MW-5	97.45	18.87	78.58	25.47	71.98	22.50	74.95	24.93	72.52	22.98	74.47	23.01	74.44	22.31	75.14	25.21	72.24
MW-6	104.36							30.77	73.59	NM		30.40	73.96	23.34	81.02	28.76	75.60
AM-1	94.47	15.34	79.13	21.90	72.57	19.05	75.42	NM		NM		NM		NM		NM	
AM-6	88.24	5.14	83.10	9.48	78.76	NM		6.14	82.10	NM		NM		NM		NM	
AMW-8	92.89					10.32	82.57	NM		NM		NM		NM		NM	
BDRW-1	97.24	NM		NM		NM		NM		NM		NM		NM		NM	
BDRW-2	95.73	NM		NM		NM		NM		NM		NM		NM		NM	
RW-1	97.41	NM		NM		NM		NM		NM		NM		NM		NM	

Elevations are relative to a site benchmark assigned an elevation of 100 feet.

TOC = Top of casing

Depth = Depth to groundwater from TOC

NM = Not Measured

All measurements are in feet.

GW-DatTbl-02.xlsGW-EL-02

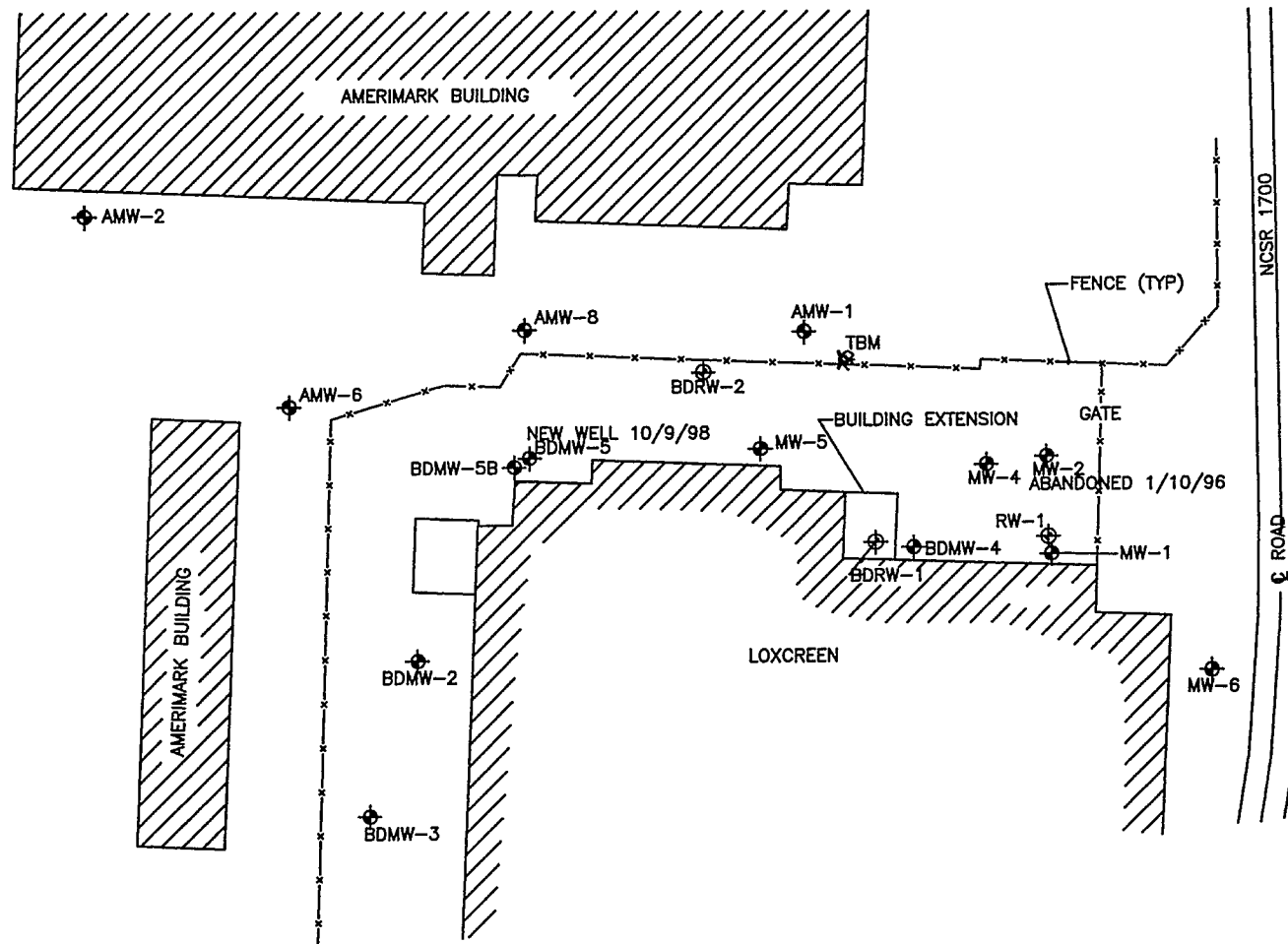
TABLE 2  
GROUNDWATER ANALYSES  
LOXCREEN COMPANY

Sherrill Environmental, Inc.

	Mar-96	Sep-96	Mar-97	Mar-98	Sep-98	Mar-99	Sep-99	Mar-00	Sep-00	Mar-01	Sep-01	Mar-02	Sep-02
	Nitrate Concentrations in mg/L												
BDMW-2			0.11	5.9	<0.4	<0.02	<0.02	0.38	<0.02	<0.02	<0.02	0.02	<0.1
BDMW-3			NS	NS	NS	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.1
BDMW-4	<b>11.9</b>	1.8	6.7	<b>13.0</b>	2.6	9.4	<b>12</b>	8.4	4.8	0.48	<b>15</b>	6	<b>33</b>
BDMW-5			NS	NS	<b>11</b>	<0.02	<0.02	NS	NS	NS	NS	NS	NS
BDMW-5B								1.3	0.81	5.3	0.14	3.2	<0.1
MW-4	<b>12.2</b>	<b>11.7</b>	3.4	<b>15.7</b>	4.6	7.9	5.3	8.8	2.5	8.3	3.3	<b>10</b>	3.4
MW-5	<b>17.5</b>	<b>137</b>	<b>187</b>	<b>18.6</b>	<b>240</b>	<b>460</b>	<b>360</b>	<b>520</b>	<b>400</b>	<b>430</b>	<b>520</b>	<b>450</b>	<b>240</b>
AMW-1	1.4	0.2	1.1	1.7	3.2	1.8	1.5	2	NS	NS	NS	NS	NS
AMW-6	5.5	1.4	5.6	3.2	3.4	1.7	NS	NS	1.2	NS	NS	NS	NS
AMW-8								<0.02	NS	NS	NS	NS	NS
BDRW-1		<b>21.5</b>	<b>10.2</b>	<b>18.6</b>	<b>33</b>	<b>160</b>	<b>35</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>38</b>	<b>27</b>	<b>52</b>
BDRW-2		<b>22</b>	<b>16</b>	<0.1	<b>93</b>	<b>26</b>	<b>26</b>	<b>37</b>	<b>38</b>	<b>26</b>	<b>56</b>	<b>55</b>	<b>79</b>
RW-1			0.5	0.6	0.5	0.26	0.25	0.37	0.37	0.27	0.33	0.66	0.38

Bold values are above the 10 mg/L NCAC 2L Standard listed for Nitrate.

GW-DatTbl-02.xlsNitrate-02



#### LEGEND



MONITORING WELL  
RECOVERY WELL

DATE: OCTOBER 2002

DESIGN by: J.S.

DWG by: LOT

SCALE: 1"=100'

loxgreen1\_LT002

#### SHERRILL ENVIRONMENTAL, INC.

7309 Still Pond Ct. • Raleigh, NC • 27613

Tel. (919) 420-7822

Fax (919) 571-0757

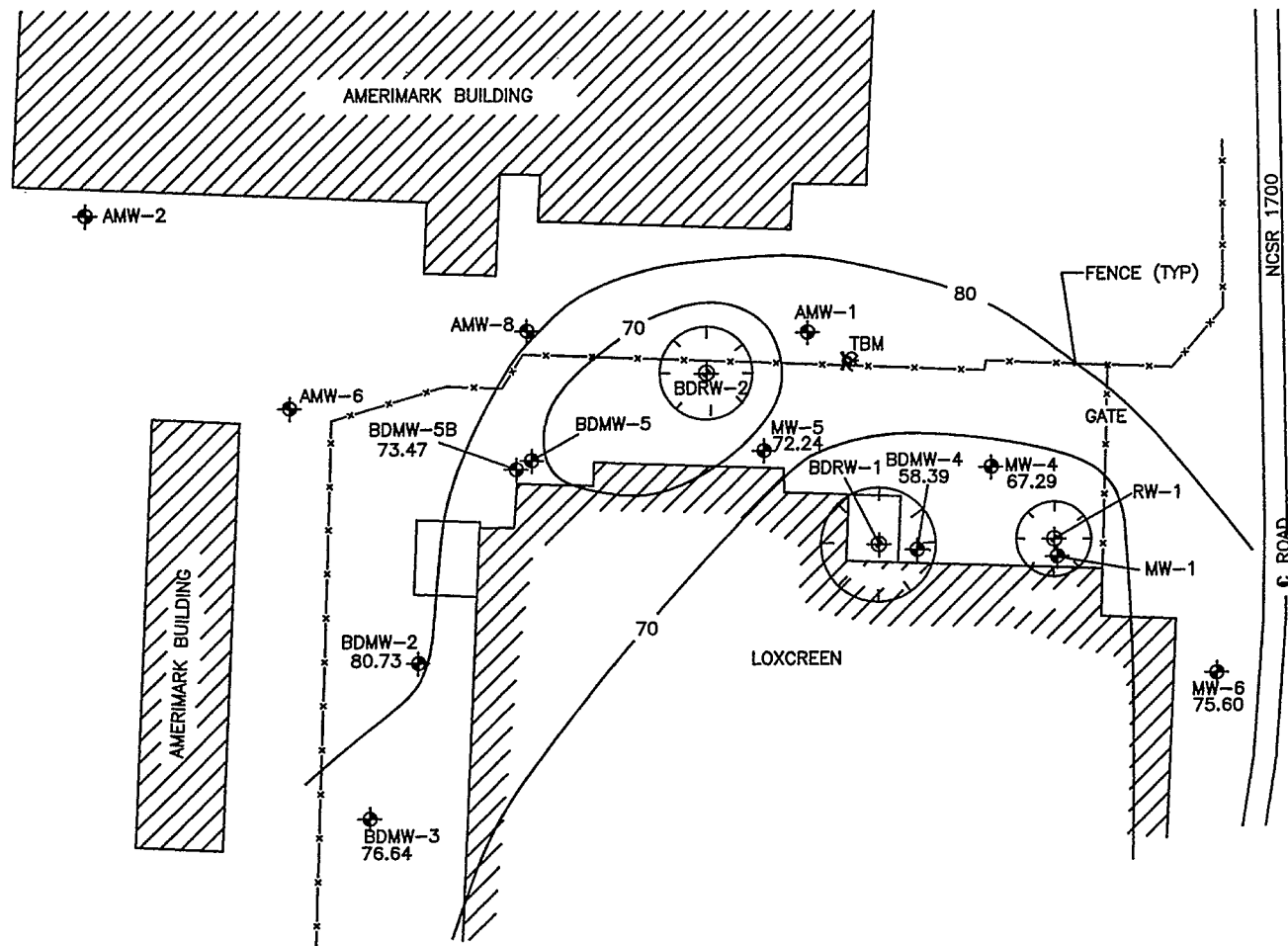
E-Mail Roxchem@aol.com

LOXGREEN-ROXBORO, NC

#### FIGURE 2

SITE MAP

SEPTEMBER 2002



### LEGEND



MONITORING WELL  
RECOVERY WELL

NOTE:  
ELEVATIONS ARE RELATIVE TO A SITE BENCHMARK  
ASSIGNED AN ELEVATION.



DATE: OCTOBER 2002

DESIGN by: J.S.

DWG by: LOT

SCALE: 1"=100' loxcreen1\_LT003

0 100 150 200 250 300

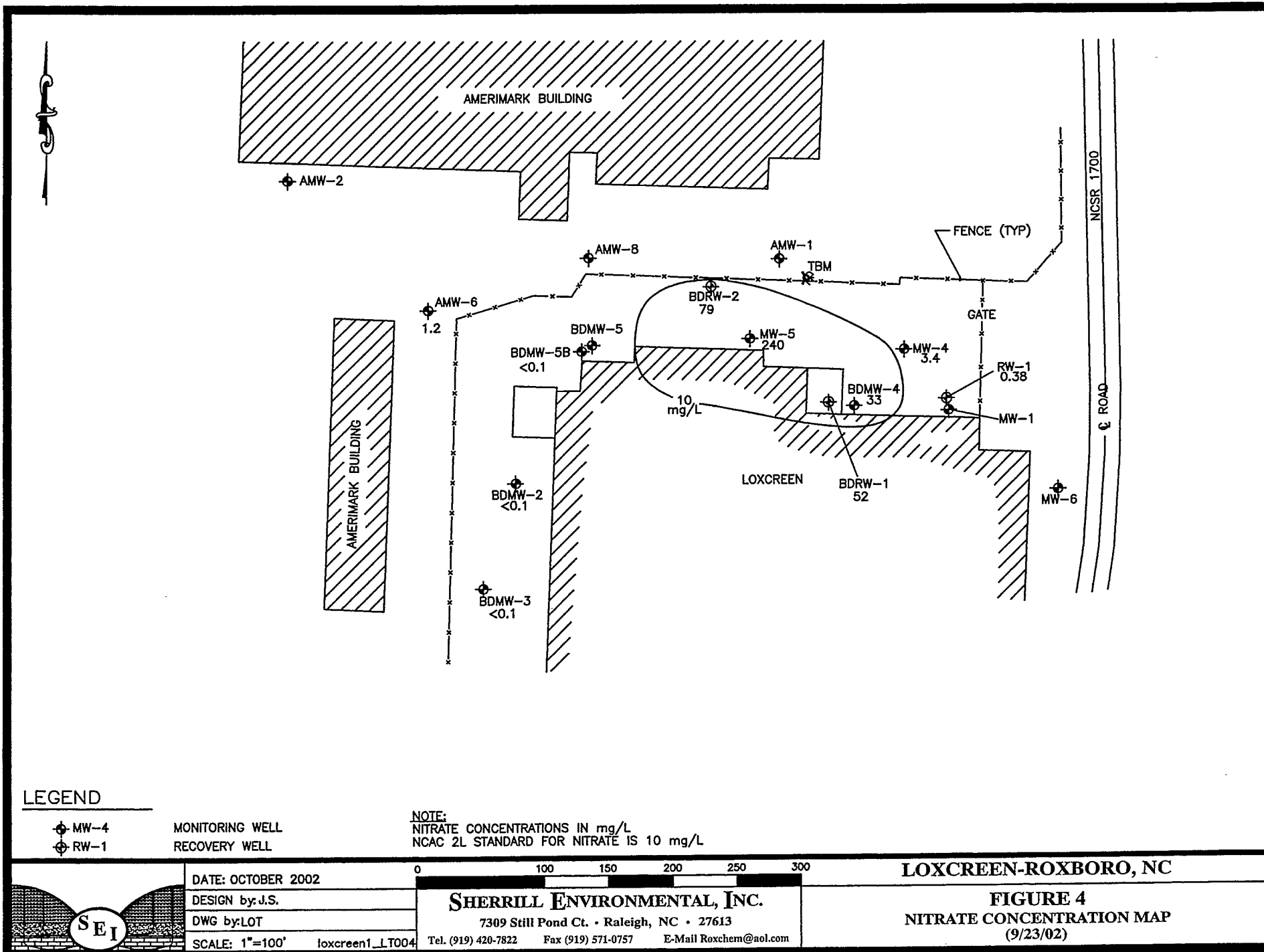
**SHERRILL ENVIRONMENTAL, INC.**

7309 Still Pond Ct. • Raleigh, NC • 27613

Tel. (919) 420-7822 Fax (919) 571-0757 E-Mail Roxchem@aol.com

**LOXCREEN-ROXBORO, NC**

**FIGURE 3**  
**POTENTIOMETRIC SURFACE MAP**  
(9/23/02)



Environmental Conservation Laboratories, Inc.  
1015 Passport Way  
Cary, North Carolina 27513  
919 / 677-1669  
Fax 919 / 677-9846  
www.encolabs.com



CLIENT : Sherrill Environmental, Inc.  
ADDRESS: 7309 Still Pond Road  
Raleigh, NC 27613

REPORT # : CRY12983  
DATE SUBMITTED: September 23, 2002  
DATE REPORTED : October 2, 2002

PAGE 1 OF 9

ATTENTION: Mr. Jack Sherrill

#### SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

REFERENCE: #02-53

Loxscreen Company

09/23/02

#2	-	BDMW-2	@	10:35
#3	-	BDMW-3	@	11:00
#4	-	BDMW-4	@	08:10
#5	-	BDMW-5D	@	09:15
#6	-	MW-4	@	07:45
#7	-	MW-5	@	08:40
#8	-	BDRW-1	@	11:20
#9	-	BDRW-2	@	11:10
#10	-	RW-1	@	11:30

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. This data has been produced in accordance with NELAC Standards (July, 1999). This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

PROJECT MANAGER

A handwritten signature in cursive script that reads "Amy R. Harris".  
\_\_\_\_\_  
Amy R. Harris

ENCO LABORATORIES

REPORT # : CRY12983

DATE REPORTED: October 2, 2002

REFERENCE : #02-53

PROJECT NAME : Loxscreen Company

PAGE 2 OF 9

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDMW-2</u>	<u>BDMW-3</u>	<u>Units</u>
Nitrate-N	0.10 U	0.10 U	mg/L
Date Analyzed	09/24/02 17:21	09/24/02 19:48	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY12983

DATE REPORTED: October 2, 2002

REFERENCE : #02-53

PROJECT NAME : Loxscreen Company

PAGE 3 OF 9

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDMW-4</u>	<u>BDMW-5D</u>	<u>Units</u>
Nitrate-N	33	0.10 U	mg/L
Date Analyzed	09/24/02 16:45	09/24/02 20:24	

U = Compound was analyzed for but not detected to the level shown.



ENCO LABORATORIES

REPORT # : CRY12983

DATE REPORTED: October 2, 2002

REFERENCE : #02-53

PROJECT NAME : Loxcreen Company

PAGE 4 OF 9

RESULTS OF ANALYSIS

<u>EPA METHOD 300 -</u> <u>Anions by IC</u>	<u>MW-4</u>	<u>MW-5</u>	<u>Units</u>
Nitrate-N	3.4	240	mg/L
Date Analyzed	09/24/02 21:01	09/24/02 14:55	

ENCO LABORATORIES

REPORT # : CRY12983

DATE REPORTED: October 2, 2002

REFERENCE : #02-53

PROJECT NAME : Loxscreen Company

PAGE 5 OF 9

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>BDRW-1</u>	<u>BDRW-2</u>	<u>Units</u>
Nitrate-N	52	79	mg/L
Date Analyzed	09/24/02 16:08	09/24/02 15:31	

ENCO LABORATORIES

REPORT # : CRY12983

DATE REPORTED: October 2, 2002

REFERENCE : #02-53

PROJECT NAME : Loxscreen Company

PAGE 6 OF 9

RESULTS OF ANALYSIS

EPA METHOD 602\* -  
VOLATILE ORGANICS

	<u>RW-1</u>	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	1.0 U	1.0 U	ug/L
Benzene	1.0 U	1.0 U	ug/L
Toluene	1.0 U	1.0 U	ug/L
Chlorobenzene	1.0 U	1.0 U	ug/L
Ethylbenzene	1.0 U	1.0 U	ug/L
m-Xylene & p-Xylene	2.0 U	2.0 U	ug/L
o-Xylene	1.0 U	1.0 U	ug/L
1,3-Dichlorobenzene	1.0 U	1.0 U	ug/L
1,4-Dichlorobenzene	1.0 U	1.0 U	ug/L
1,2-Dichlorobenzene	1.0 U	1.0 U	ug/L
Isopropyl Ether	1.0 U	1.0 U	ug/L

Surrogate:

	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Dibromofluoromethane	109	111	73-138
D8-Toluene	101	102	77-118
Bromofluorobenzene	101	96	70-130
Date Analyzed	10/01/02 23:29	10/01/02 11:29	

EPA METHOD 300 -

Anions by IC

	<u>RW-1</u>	<u>LAB BLANK</u>	<u>Units</u>
Nitrate-N	0.38	0.10 U	mg/L
Date Analyzed	09/24/02 21:38	09/24/02 10:11	

\* = EPA Method 601/602 by EPA Method 624.

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY12983  
 DATE REPORTED: October 2, 2002  
 REFERENCE : #02-53  
 PROJECT NAME : Loxscreen Company

PAGE 7 OF 9

RESULTS OF ANALYSIS

EPA METHOD 300 -  
Anions by IC

	<u>LAB BLANK</u>	<u>Units</u>
Fluoride	0.10 U	mg/L
Chloride	0.50 U	mg/L
Nitrite-N	0.10 U	mg/L
Nitrate-N	0.10 U	mg/L
Sulfate	2.0 U	mg/L
Date Analyzed	09/24/02 19:11	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY12983

DATE REPORTED: October 2, 2002

REFERENCE : #02-53

PROJECT NAME : Loxcreen Company

PAGE 8 OF 9

LABORATORY CERTIFICATIONS

Laboratory Certification: NCDENR:591

All analyses reported with this project were analyzed by the facility indicated unless identified below.

PARAMETER

Nitrate, EPA Method 300

LAB CERT #'s

NCDENR:424

## ENCO LABORATORIES

REPORT # : CRY12983

DATE REPORTED: October 2, 2002

REFERENCE : #02-53

PROJECT NAME : Loxscreen Company

PAGE 9 OF 9

## QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>MS/MSD/LCS</u>	<u>ACCEPT</u> <u>LIMITS</u>	<u>% RPD</u> <u>MS/MSD</u>	<u>ACCEPT</u> <u>LIMITS</u>
<u>EPA Method 624</u>				
1,1-Dichloroethene	93/ 91/ 88	36-177	2	30
Benzene	#59/ 50/ 99	53-150	16	23
Trichloroethene	96/ 92/ 91	64-124	4	25
Toluene	75/ 70/100	40-161	7	23
Chlorobenzene	100/ 97/ 97	44-128	3	22
<u>EPA Method 300</u>				
Fluoride	105/112/ 97	43-130	6	25
Chloride	105/102/ 96	51-149	3	26
Nitrite-N	105/104/ 97	48-161	<1	22
Nitrate-N	105/106/ 97	40-152	<1	23
Sulfate	111/108/ 96	47-148	3	25
<u>EPA Method 300</u>				
Fluoride	105/112/ 99	43-130	6	25
Chloride	105/102/ 95	51-149	3	26
Nitrite-N	105/104/ 99	48-161	<1	22
Nitrate-N	105/106/ 96	40-152	<1	23
Sulfate	111/108/ 95	47-148	3	25

# = One or more of the associated values failed to meet laboratory established criteria for accuracy.

< = Less Than

MS = Matrix Spike

MSD = Matrix Spike Duplicate

LCS = Laboratory Control Standard

RPD = Relative Percent Difference



# ENVIRONMENTAL CONSERVATION LABORATORIES

4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
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Orlando, Florida 32824-8529  
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1015 Passport Way  
Cary, North Carolina 27513  
Ph. (919) 677-1669 • Fax (919) 677-9846

QSARF # \_\_\_\_\_  
711348 P11348

ENCO CompQAP No.: 960038G/0

## CHAIN OF CUSTODY RECORD

PROJECT REFERENCE					PROJECT NO.		P.O. NUMBER		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 1 OF 1								
PROJECT LOC. (State)					SAMPLE NAME					PHONE					FAX					<div><input checked="" type="checkbox"/> STANDARD REPORT DELIVERY <input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge) Date Due: _____</div>									
NC					John Sherrill					(919)-420-7822					(919)-571-0757														
CLIENT NAME					CLIENT PROJECT MANAGER																								
Sherrill Environmental, Inc.					Mr. Jack Sherrill																								
CLIENT ADDRESS (CITY, STATE, ZIP)																													
7309 Still Pond Road Raleigh, NC 27613																													
SAMPLE					PRESERVATIVE												REMARKS												
STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	NITRATE300	SEM/AROM/NCM	NUMBER OF CONTAINERS SUBMITTED	REMARKS											
1	9/23/02	1035			BDMW-2	X									1	0													
2		1100			BDMW-3	X									1	0													
3		810			BDMW-4	X									1	0													
4					<del>BDMW-5</del>	X									1	0													
5		915			BDMW-5D	X									1	0													
6					<del>MW-1</del>	X									1	0													
7		745			MW-4	X									1	0													
8		840			MW-5	X									1	0													
9		1120			BDRW-1	X									1	0													
10		1110			BDRW-2	X									1	0													
11	✓	1130			RW-1	X									1	2													
12																													
13																													
14																													

SAMPLE KIT PREPARED BY:		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
□ JACKSONVILLE □ ORLANDO											
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
John Sherrill		9/23/02	1300								
RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT	ENCO LOG NO.	REMARKS
Amy B. Hobbes		9/23/02	1630	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	C2412983	
□ Jacksonville □ Orlando						

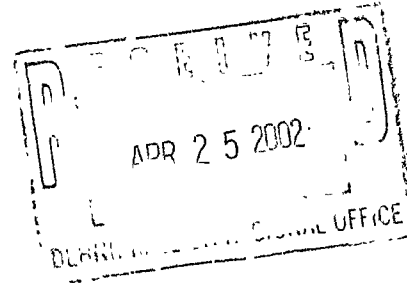


**SHERRILL ENVIRONMENTAL, INC.**  
Environmental and Geologic Services

April 10, 2002

Mr. Jay Zimmerman  
NCDENR  
Groundwater Section -- Raleigh Regional Office  
Post Office Box 27687  
Raleigh, NC 27611

Subject: Semiannual Monitoring for Nitrate  
March 11, 2002  
Incident No. 9179 (Shared)  
The Loxcreen Company  
Roxboro, North Carolina



Dear Mr. Zimmerman:

Sherrill Environmental, Inc. (Sherrill), on behalf of The Loxcreen Company (Loxcreen), conducted semiannual groundwater monitoring on March 11, 2002, at the Roxboro, North Carolina facility (Figure 1). Groundwater samples were collected from six monitoring wells and three recovery wells (Figure 2). The nine groundwater samples were analyzed for nitrate. In addition, one groundwater sample was collected from recovery well RW-1 and analyzed for volatile organic compounds (BTEX).

**Field Activities**

Groundwater sampling was performed by Sherrill personnel on March 11, 2002. Activities were initiated by unlocking and opening the monitoring wells to allow the groundwater levels to equilibrate with atmospheric pressure. The depth to water was measured in each monitoring well with an electronic water level indicator (Table 1). Water levels were not measured in the recovery wells. Well volumes were calculated, and each well was purged a minimum of three volumes. Purging and sampling were performed with a new disposable polyethylene bailer for each monitoring well. Groundwater samples were collected from the three recovery wells at each well's discharge sampling port. All samples were collected in laboratory-supplied glassware, placed in an ice-filled cooler, and transferred to a laboratory certified by NCDENR using standard, chain-of-custody procedures.

**Data Analysis**

A potentiometric surface map was generated using the groundwater level measurements obtained on March 11, 2002 (Figure 3). The data suggest a significant radius of influence for recovery wells BDRW-1, BDRW-2, and RW-1. The recovery wells appear to be controlling the migration of the nitrate contaminant plume.



The nitrate analysis of the groundwater samples collected on March 11, 2002 is summarized on Table 2, and the laboratory report is attached. The groundwater samples contained nitrate (NO<sub>3</sub>) in concentrations that ranged from 0.02 mg/L to 450 mg/L. Four of the nine groundwater samples contained concentrations of nitrate above the NCAC 2L Standard of 10 mg/L (Figure 4). The groundwater sample from MW-5 had a concentration of nitrate at 450 mg/L. The groundwater samples from recovery wells BDRW-1 and BDRW-2 had concentrations of nitrate at 27 mg/L and 55 mg/L, respectively.

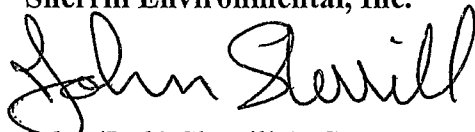
In summary, the groundwater plume of nitrate contamination appears to be limited to onsite. Only two of the six monitoring wells had a groundwater sample with nitrate concentrations above the NCAC 2L Standard. The recovery wells appear to be controlling the migration of the plume. The recovery wells are functioning to clean the site as the nitrate concentrations in the water being removed is above the NCAC 2L Standard.

The groundwater sample collected from RW-1 was also analyzed for volatile organic compounds (BTEX) and the gasoline additive MTBE. No gasoline-related compounds were present above the detection limits.

The next monitoring event for nitrate is scheduled for September 2002. Please contact us at (919) 420-7822 or Mr. Charles Dix of Loxcreen at (336) 599-9261, if you have any questions or need additional information.

Sincerely,

Sherrill Environmental, Inc.

  
John (Jack) Sherrill, P.G.



CC: Mr. Charles Dix, Plant Engineer, The Loxcreen Company, Inc.  
Mr. Brent Theiling, Engineering Manager, The Loxcreen Company, Inc.

**TABLE 1**  
**GROUNDWATER TABLE MEASUREMENTS**  
**LOXGREEN COMPANY, ROXBORO, NC**

**Sherrill Environmental, Inc.**

	TOC	3/29/1999		9/14/1999		3/20/2000		9/11/2000		3/12/2001		9/17/2001		3/11/2002	
	Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.
BDMW-2	97.34	14.63	82.71	19.44	77.90	17.60	79.74	15.70	81.64	15.02	82.32	14.22	83.12	14.93	82.41
BDMW-3	97.56	20.37	77.19	22.65	74.91	18.98	78.58	20.72	76.84	16.97	80.59	20.02	77.54	17.67	79.89
BDMW-4	97.96	38.12	59.84	40.54	57.42	35.72	62.24	36.58	61.38	35.17	62.79	40.08	57.88	37.78	60.18
BDMW-5	96.85	19.86	76.99	24.93	71.92	NM		NM		NM		NM		NM	
BDMW-5B	96.65					20.07	76.58	24.23	72.42	19.03	77.62	21.87	74.78	18.11	78.54
MW-1	98.07	NM		20.51	77.56	NM		NM		NM		NM		NM	
MW-4	97.76	27.52	70.24	30.54	67.22	29.24	68.52	30.23	67.53	28.72	69.04	30.32	67.44	29.36	68.40
MW-5	97.45	18.87	78.58	25.47	71.98	22.50	74.95	24.93	72.52	22.98	74.47	23.01	74.44	22.31	75.14
MW-6	104.36							30.77	73.59	NM		30.40	73.96	23.34	81.02
AM-1	94.47	15.34	79.13	21.90	72.57	19.05	75.42	NM		NM		NM		NM	
AM-6	88.24	5.14	83.10	9.48	78.76	NM		6.14	82.10	NM		NM		NM	
AMW-8	92.89					10.32	82.57	NM		NM		NM		NM	
BDRW-1	97.24	NM		NM		NM		NM		NM		NM		NM	
BDRW-2	95.73	NM		NM		NM		NM		NM		NM		NM	
RW-1	97.41	NM		NM		NM		NM		NM		NM		NM	

Elevations are relative to a site benchmark assigned an elevation of 100 feet.

TOC = Top of casing

Depth = Depth to groundwater from TOC

NM = Not Measured

All measurements are in feet.

GW-DatTbl-02.xlsGW-EL-02

**TABLE 2**  
**GROUNDWATER ANALYSES**  
**LOXGREEN COMPANY**

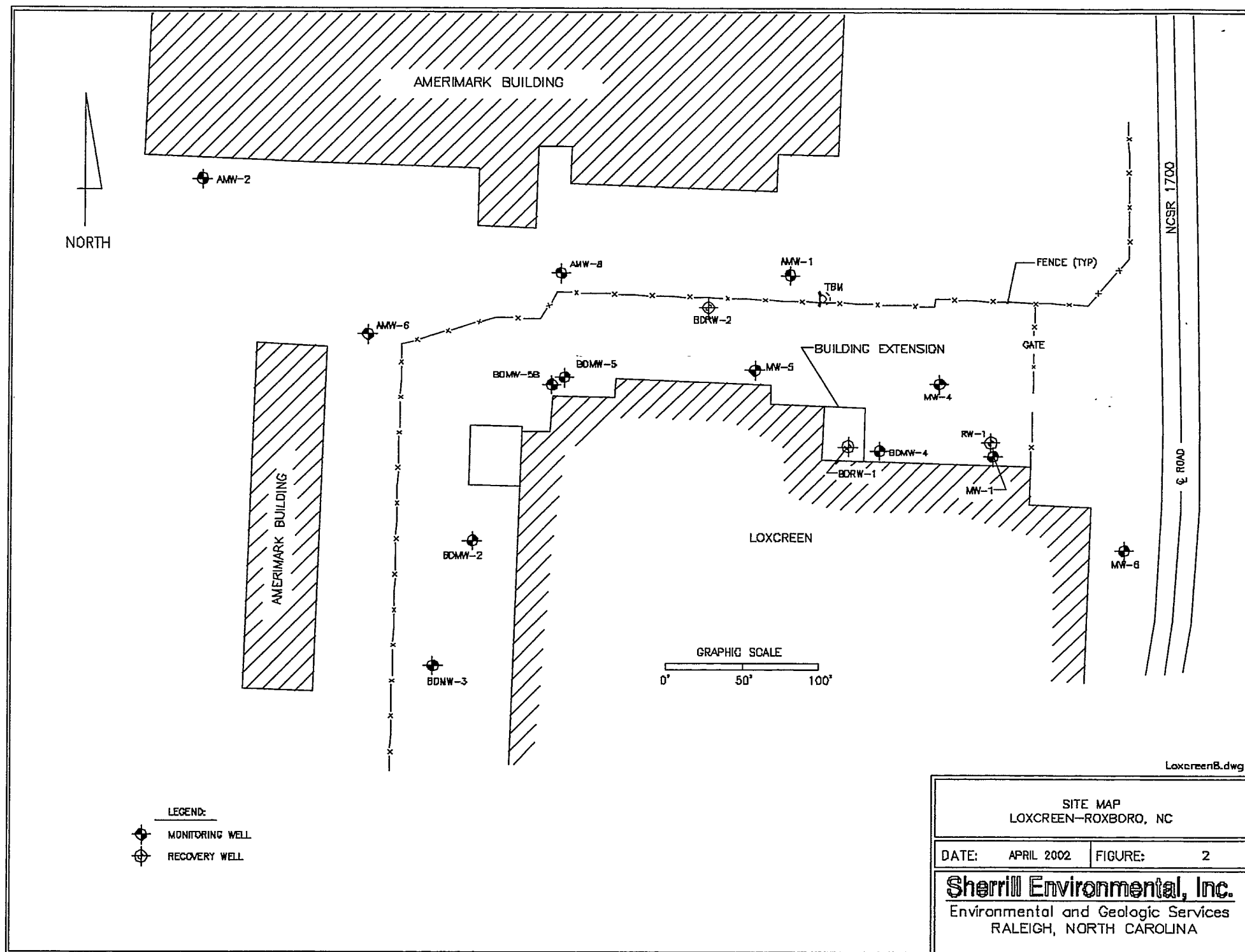
**Sherrill Environmental, Inc.**

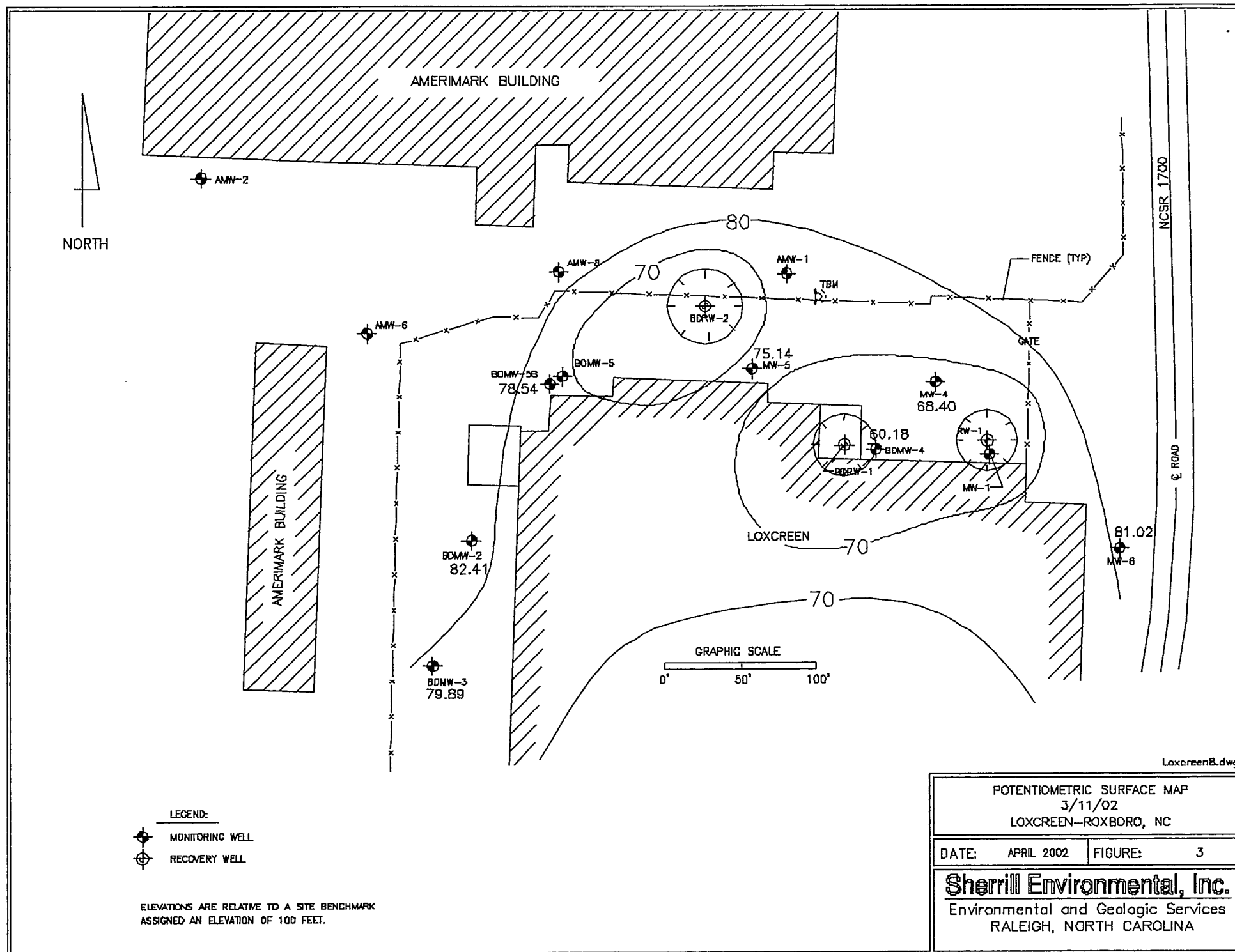
	Mar-96	Sep-96	Mar-97	Mar-98	Sep-98	Mar-99	Sep-99	Mar-00	Sep-00	Mar-01	Sep-01	Mar-02
	Nitrate Concentrations in mg/L											
BDMW-2			0.11	5.9	<0.4	<0.02	<0.02	0.38	<0.02	<0.02	<0.02	0.02
BDMW-3			NS	NS	NS	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02
BDMW-4	<b>11.9</b>	1.8	6.7	<b>13.0</b>	2.6	9.4	<b>12</b>	8.4	4.8	0.48	<b>15</b>	6
BDMW-5			NS	NS	<b>11</b>	<0.02	<0.02	NS	NS	NS	NS	NS
BDMW-5B								1.3	0.81	5.3	0.14	3.2
MW-4	<b>12.2</b>	<b>11.7</b>	3.4	<b>15.7</b>	4.6	7.9	5.3	8.8	2.5	8.3	3.3	<b>10</b>
MW-5	<b>17.5</b>	<b>137</b>	<b>187</b>	<b>18.6</b>	<b>240</b>	<b>460</b>	<b>360</b>	<b>520</b>	<b>400</b>	<b>430</b>	<b>520</b>	<b>450</b>
AMW-1	1.4	0.2	1.1	1.7	3.2	1.8	1.5	2	NS	NS	NS	NS
AMW-6	5.5	1.4	5.6	3.2	3.4	1.7	NS	NS	1.2	NS	NS	NS
AMW-8								<0.02	NS	NS	NS	NS
BDRW-1		<b>21.5</b>	<b>10.2</b>	<b>18.6</b>	<b>33</b>	<b>160</b>	<b>35</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>38</b>	<b>27</b>
BDRW-2		<b>22</b>	<b>16</b>	<0.1	<b>93</b>	<b>26</b>	<b>26</b>	<b>37</b>	<b>38</b>	<b>26</b>	<b>56</b>	<b>55</b>
RW-1			0.5	0.6	0.5	0.26	0.25	0.37	0.37	0.27	0.33	0.66

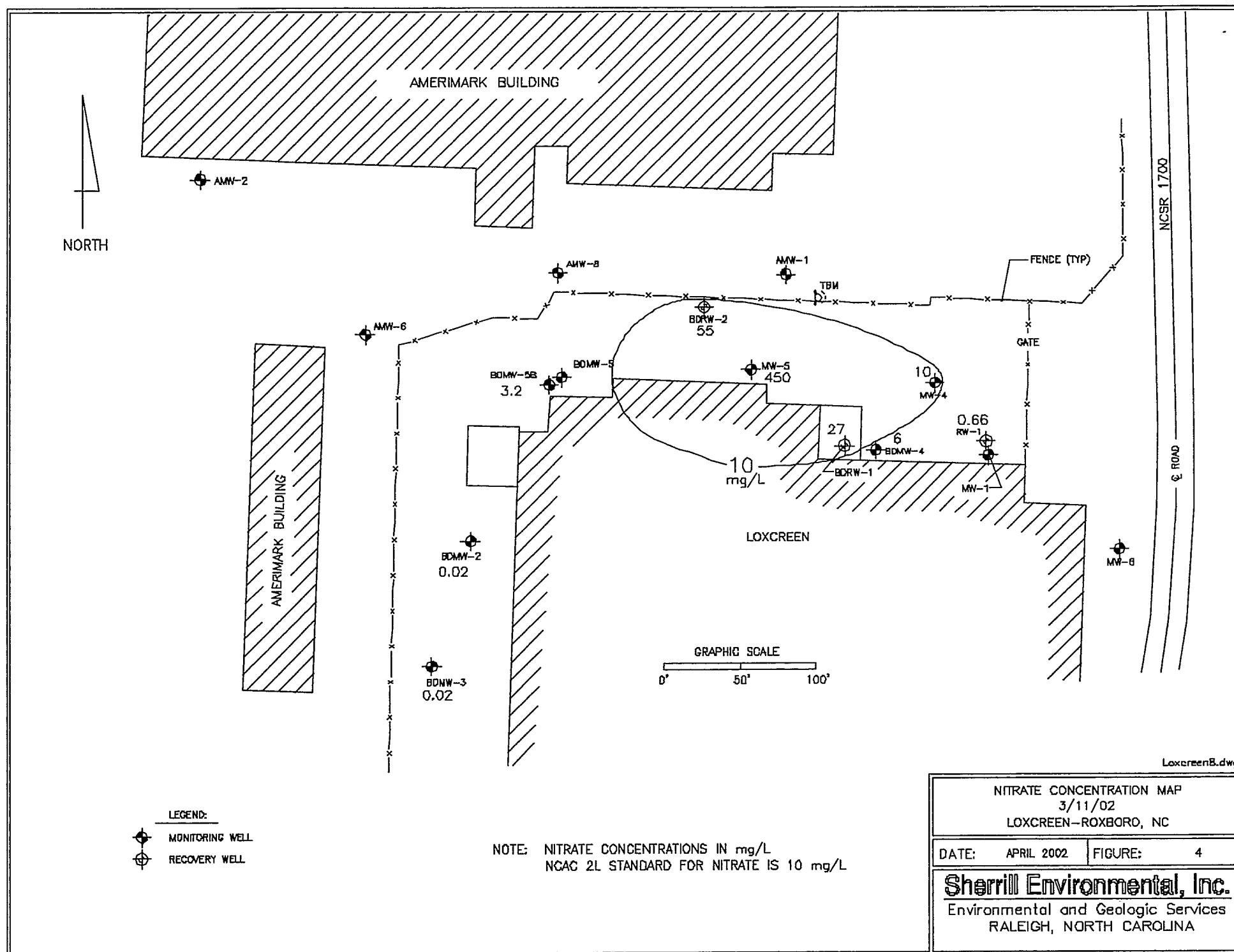
Bold values are above the 10 mg/L NCAC 2L Standard listed for Nitrate.

GW-DatTbl-02.xlsNitrate-02

DATE: MAY 1999	FIGURE: 1
----------------	-----------







Environmental Conservation Laboratories, Inc.  
1015 Passport Way  
Cary, North Carolina 27513  
919 / 677-1669  
Fax 919 / 677-9846  
www.encolabs.com



CLIENT : Sherrill Environmental, Inc.  
ADDRESS: 7309 Still Pond Road  
Raleigh, NC 27613

REPORT # : CRY11930  
DATE SUBMITTED: March 11, 2002  
DATE REPORTED : March 21, 2002

PAGE 1 OF 8

ATTENTION: Mr. Jack Sherrill

**SAMPLE IDENTIFICATION**

Samples submitted and  
identified by client as:

REFERENCE: 01-29

Loxcreen Co. Roxboro, NC

03/11/02

#1	-	BDMW-2	@	13:20
#2	-	BDMW-3	@	13:50
#3	-	BDMW-4	@	11:15
#4	-	BDMW-5B	@	12:30
#5	-	MW-4	@	10:40
#6	-	MW-5	@	12:00
#7	-	BDRW-1	@	14:20
#8	-	BDRW-2	@	14:10
#9	-	RW-1	@	14:00

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. This data has been produced in accordance with NELAC Standards (July, 1999). This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

PROJECT MANAGER

A handwritten signature in cursive script that reads "Amy R. Harris".  
\_\_\_\_\_  
Amy R. Harris



ENCO LABORATORIES

REPORT #: CRY11930

DATE REPORTED: March 21, 2002

REFERENCE: 01-29

PROJECT NAME: Loxscreen Co. Roxboro, NC

PAGE 2 OF 8

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>BDMW-2</u>	<u>BDMW-3</u>	<u>Units</u>
Nitrate-N	353.3	0.020	0.020	mg/L
Date Analyzed		03/13/02 11:12	03/13/02 11:12	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY11930

DATE REPORTED: March 21, 2002

REFERENCE : 01-29

PROJECT NAME : Loxgreen Co. Roxboro, NC

PAGE 3 OF 8

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>BDMW-4</u>	<u>BDMW-5B</u>	<u>Units</u>
Nitrate-N	353.3	6.0	3.2	mg/L
Date Analyzed		03/13/02 11:12	03/13/02 11:12	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY11930

DATE REPORTED: March 21, 2002

REFERENCE : 01-29

PROJECT NAME : Loxscreen Co. Roxboro, NC

PAGE 4 OF 8

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MW-4</u>	<u>MW-5</u>	<u>Units</u>
Nitrate-N	353.3	10	450	mg/L
Date Analyzed		03/13/02 11:12	03/13/02 11:12	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY11930

DATE REPORTED: March 21, 2002

REFERENCE : 01-29

PROJECT NAME : Loxscreen Co. Roxboro, NC

PAGE 5 OF 8

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>BDRW-1</u>	<u>BDRW-2</u>	<u>Units</u>
Nitrate-N	353.3	27	55	mg/L
Date Analyzed		03/13/02 11:12	03/13/02 11:12	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY11930

DATE REPORTED: March 21, 2002

REFERENCE : 01-29

PROJECT NAME : Loxscreen Co. Roxboro, NC

PAGE 6 OF 8

RESULTS OF ANALYSIS

EPA METHOD 602\* -  
VOLATILE ORGANICS

	<u>RW-1</u>	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	1.0 U	1.0 U	ug/L
Benzene	1.0 U	1.0 U	ug/L
Toluene	1.0 U	1.0 U	ug/L
Chlorobenzene	1.0 U	1.0 U	ug/L
Ethylbenzene	1.0 U	1.0 U	ug/L
m-Xylene & p-Xylene	2.0 U	2.0 U	ug/L
o-Xylene	1.0 U	1.0 U	ug/L
1,3-Dichlorobenzene	1.0 U	1.0 U	ug/L
1,4-Dichlorobenzene	1.0 U	1.0 U	ug/L
1,2-Dichlorobenzene	1.0 U	1.0 U	ug/L
Isopropyl Ether	1.0 U	1.0 U	ug/L

Surrogate:

	<u>% RECOV</u>	<u>% RECOV</u>	<u>LIMITS</u>
Dibromofluoromethane	106	110	38-143
D8-Toluene	92	95	78-126
Bromofluorobenzene	99	94	72-132
Date Analyzed	03/12/02 21:01	03/13/02 15:33	

MISCELLANEOUS

	<u>METHOD</u>	<u>RW-1</u>	<u>LAB BLANK</u>	<u>Units</u>
Nitrate-N	353.3	0.66	NR	mg/L
Date Analyzed		03/13/02 11:12		

\* = EPA Method 602 by EPA Method 624.

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : CRY11930

DATE REPORTED: March 21, 2002

REFERENCE : 01-29

PROJECT NAME : Loxscreen Co. Roxboro, NC

PAGE 7 OF 8

LABORATORY CERTIFICATIONS

Laboratory Certification: NCDENR:591

All analyses reported with this project were analyzed by the facility indicated unless identified below.

PARAMETER

Nitrogen, Nitrate, EPA Method 353.1  
Nitrite as Nitrogen, EPA Method 354.1  
Nitrogen, NO<sub>3</sub>-NO<sub>2</sub>, EPA Method 353.1

LAB CERT #'s

NCDENR:424  
NCDENR:424  
NCDENR:424

ENCO LABORATORIES

REPORT # : CRY11930

DATE REPORTED: March 21, 2002

REFERENCE : 01-29

PROJECT NAME : Loxscreen Co. Roxboro, NC

PAGE 8 OF 8

QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>MS/MSD/LCS</u>	<u>ACCEPT</u> <u>LIMITS</u>	<u>% RPD</u> <u>MS/MSD</u>	<u>ACCEPT</u> <u>LIMITS</u>
EPA Method 624				
1,1-Dichloroethene	78/ 88/ 83	36-177	12	30
Benzene	107/105/106	53-150	2	23
Trichloroethene	81/ 89/ 85	64-124	9	25
Toluene	95/104/100	40-161	9	23
Chlorobenzene	93/ 93/ 91	44-128	<1	22
MISCELLANEOUS				
Nitrite-N, 354.1	83/ 82/107	64-119	1	12
Nitrate-Nitrite-N, 353.1	*/ * /100	61-144	*	21

Environmental Conservation Laboratories Comprehensive QA Plan #990083

\* = MS/MSD/RPD unavailable due to matrix interference.

< = Less Than

MS = Matrix Spike

MSD = Matrix Spike Duplicate

LCS = Laboratory Control Standard

RPD = Relative Percent Difference



# ENVIRONMENTAL CONSERVATION LABORATORIES

QSARF # \_\_\_\_\_

P11094

4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive  
Orlando, Florida 32824-8529  
Ph. (407) 826-5314 • Fax (407) 850-6945

1015 Passport Way  
Cary, North Carolina 27513  
Ph. (919) 677-1669 • Fax (919) 677-9846

ENCO CompQAP No.: 960038G/0

## CHAIN OF CUSTODY RECORD

PROJECT REFERENCE <b>Loxreen Company, Roxboro, NC</b>		PROJECT NO. <b>01-29</b>	P.O. NUMBER	MATRIX TYPE		REQUIRED ANALYSIS		PAGE <b>1</b> OF <b>1</b>
PROJECT LOC. (State) <b>NC</b>	SAMPLER(S) NAME <b>John Sherrill</b>	PHONE <b>(919)-420-7822</b>	FAX <b>(919)-571-0757</b>	<div>SURFACE WATER</div> <div>GROUND WATER</div> <div>WASTEWATER</div> <div>DRINKING WATER</div> <div>SOIL/SOLID/SEDIMENT</div> <div>NONAQUEOUS LIQUID (oil, solvent, etc.)</div> <div>AIR</div> <div>SLUDGE</div> <div>OTHER</div> <div>NITRATE300</div> <div>BZ/AROM/CM</div>		<div>PRESERVATIVE</div> <div>NUMBER OF CONTAINERS SUBMITTED</div>		<input checked="" type="checkbox"/> STANDARD REPORT DELIVERY <input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge) Date Due: _____
CLIENT NAME <b>Sherrill Environmental, Inc.</b>	CLIENT PROJECT MANAGER <b>Mr. Jack Sherrill</b>							
CLIENT ADDRESS (CITY, STATE, ZIP) <b>7309 Still Pond Road Raleigh, NC 27613</b>								

SAMPLE					SAMPLE IDENTIFICATION													REMARKS
STATION	DATE	TIME	GRAB	COMP														
1	3/11/02	1320	X		BDMW-2	X								1	0			
2		1350	X		BDMW-3	X								1	0			
3		1115	X		BDMW-4	X								1	0			
4					<del>BDMW-5</del>	X								1	0			
5		1230	X		BDMW-5B	X								1	0			
6					<del>MW-1</del>	X								1	0			
7		1040	X		MW-4	X								1	0			
8		1200	X		MW-5	X								1	0			
9		1420	X		BDRW-1	X								1	0			
10		1410	X		BDRW-2	X								1	0			
11		1400	X		RW-1	X								1	2			
12																		
13																		
14																		

SAMPLE KIT PREPARED BY: <input type="checkbox"/> JACKSONVILLE <input type="checkbox"/> ORLANDO		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
RELINQUISHED BY: (SIGNATURE) <i>John Sherrill</i>		DATE 3/11/02	TIME 1550	RECEIVED BY: (SIGNATURE) <i>V. O'Brien</i>		DATE 3/11/02	TIME 16:15	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
RECEIVED BY: (SIGNATURE) <i>V. O'Brien</i>		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>V. O'Brien</i>		DATE 3/11/02	TIME 16:40	CUSTODY INTACT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	ENCO LOG NO. <b>CR411930</b>	REMARKS					

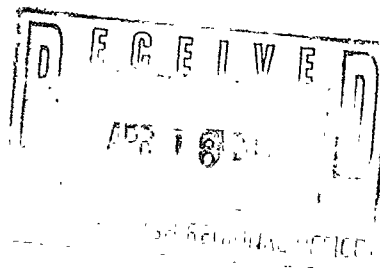




**SHERRILL ENVIRONMENTAL, INC.**  
Environmental and Geologic Services

April 13, 2000

Mr. Jay Zimmerman  
NCDENR  
Groundwater Section – Raleigh Regional Office  
Post Office Box 27687  
Raleigh, NC 27611



Subject:       Semiannual Monitoring for Nitrate  
                  Incident No. 9179 (Shared)  
                  The Loxcreen Company  
                  Roxboro, North Carolina

Dear Mr. Zimmerman:

Sherrill Environmental, Inc. (Sherrill), on behalf of The Loxcreen Company (Loxcreen), conducted semiannual groundwater monitoring on March 20, 2000, at the Roxboro, North Carolina facility (Figure 1). Groundwater samples were collected from eight monitoring wells and three recovery wells (Figure 2). The eleven groundwater samples were analyzed for nitrate. In addition, one groundwater sample was collected from recovery well RW-1 and analyzed for volatile organic compounds (BTEX).

#### **Field Activities**

Groundwater sampling was performed by Sherrill personnel on March 20, 2000. Activities were initiated by unlocking and opening the monitoring wells to allow the groundwater levels to equilibrate with atmospheric pressure. The depth to water was measured in each monitoring well with an electronic water level indicator (Table 1). Water levels were not measured in the recovery wells. Well volumes were calculated, and all 2-inch diameter wells were purged a minimum of three volumes. Purging and sampling were performed with a new disposable polyethylene bailer for each monitoring well. Groundwater samples were collected from the three recovery wells at each well's discharge sampling port. All samples were collected in laboratory-supplied glassware, placed in an ice-filled cooler, and transferred to a laboratory certified by NCDENR using standard, chain-of-custody procedures.

#### **Data Analysis**

A potentiometric surface map was generated using the groundwater level measurements obtained on March 20, 2000 (Figure 3). The data suggest a significant radius of influence for recovery wells BDRW-1 and BDRW-2. The recovery wells appear to be controlling the migration of the nitrate contaminant plume.

The groundwater analysis of the samples collected on March 20, 2000 is summarized on Table 2, and the laboratory report is attached. The groundwater samples contained nitrate ( $\text{NO}_3$ ) in concentrations that ranged from less than the detection limit of 0.02 mg/L to 520 mg/L. Three of the eleven groundwater samples contained concentrations of nitrate above the NCAC 2L Standard of 10 mg/L (Figure 4). The groundwater sample from MW-5 had a concentration of nitrate at 520 mg/L. The groundwater samples from recovery wells BDRW-1 and BDRW-2 had concentrations of nitrate at 25 mg/L and 37 mg/L, respectively.

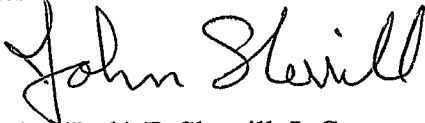
In summary, the groundwater plume of nitrate contamination appears to be limited to onsite. Only one of the eight monitoring wells had a groundwater sample with nitrate concentrations above the NCAC 2L Standard. The recovery wells appear to be controlling the migration of the plume. The recovery wells are functioning to clean the site as the nitrate concentrations in the water being removed is above the NCAC 2L Standard.

The groundwater sample collected from RW-1 was also analyzed for volatile organic compounds (BTEX) and the gasoline additives IPE and MTBE. MTBE was detected in a concentration of 7 ug/L. The NCAC 2L Standard for MTBE is listed at 200 ug/L. These results are consistent with past data in that low levels of gasoline related compounds continue to be detected in the groundwater samples from the remediation well RW-1.

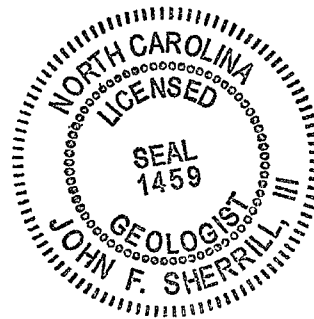
The next monitoring event for nitrate is scheduled for September 2000. If you have any additional questions or need additional information, please contact us at (919) 420-7822.

Sincerely,

**SHERRILL ENVIRONMENTAL, INC.**



John (Jack) F. Sherrill, L.G.



CC: Chuck Dix, The Loxscreen Company  
Butch Smith, Watson & Barron LTD

**TABLE 1**  
**GROUNDWATER TABLE MEASUREMENTS**  
**LOXCREEN COMPANY, ROXBORO, NC**

**Sherrill Environmental, Inc.**

	TOC Elv.	3/29/99		9/14/99		3/20/00	
		Depth	GW-Elv.	Depth	GW-Elv.	Depth	GW-Elv.
BDMW-2	97.34	14.63	82.71	19.44	77.9	17.6	79.74
BDMW-3	97.56	20.37	77.19	22.65	74.91	18.98	78.58
BDMW-4	97.96	38.12	59.84	40.54	57.42	35.72	62.24
BDMW-5	96.85	19.86	76.99	24.93	71.92	NM	
BDMW-5B	96.65					20.07	76.58
MW-1	98.07	NM		20.51	77.56	NM	
MW-4	97.76	27.52	70.24	30.54	67.22	29.24	68.52
MW-5	97.45	18.87	78.58	25.47	71.98	22.5	74.95
AM-1	94.47	15.34	79.13	21.9	72.57	19.05	75.42
AM-6	88.24	5.14	83.1	9.48	78.76	NM	
AMW-8	92.89					10.32	82.57
BDRW-1	97.24	NM		NM		NM	
BDRW-2	95.73	NM		NM		NM	
RW-1	97.41	NM		NM		NM	

Elevations are relative to a site benchmark assigned an elevation of 100 feet.

TOC = Top of casing

Depth = Depth to groundwater from TOC

NM = Not Measured

All measurements are in feet.

GW-DatTbl-3-00.xlsField 9-99

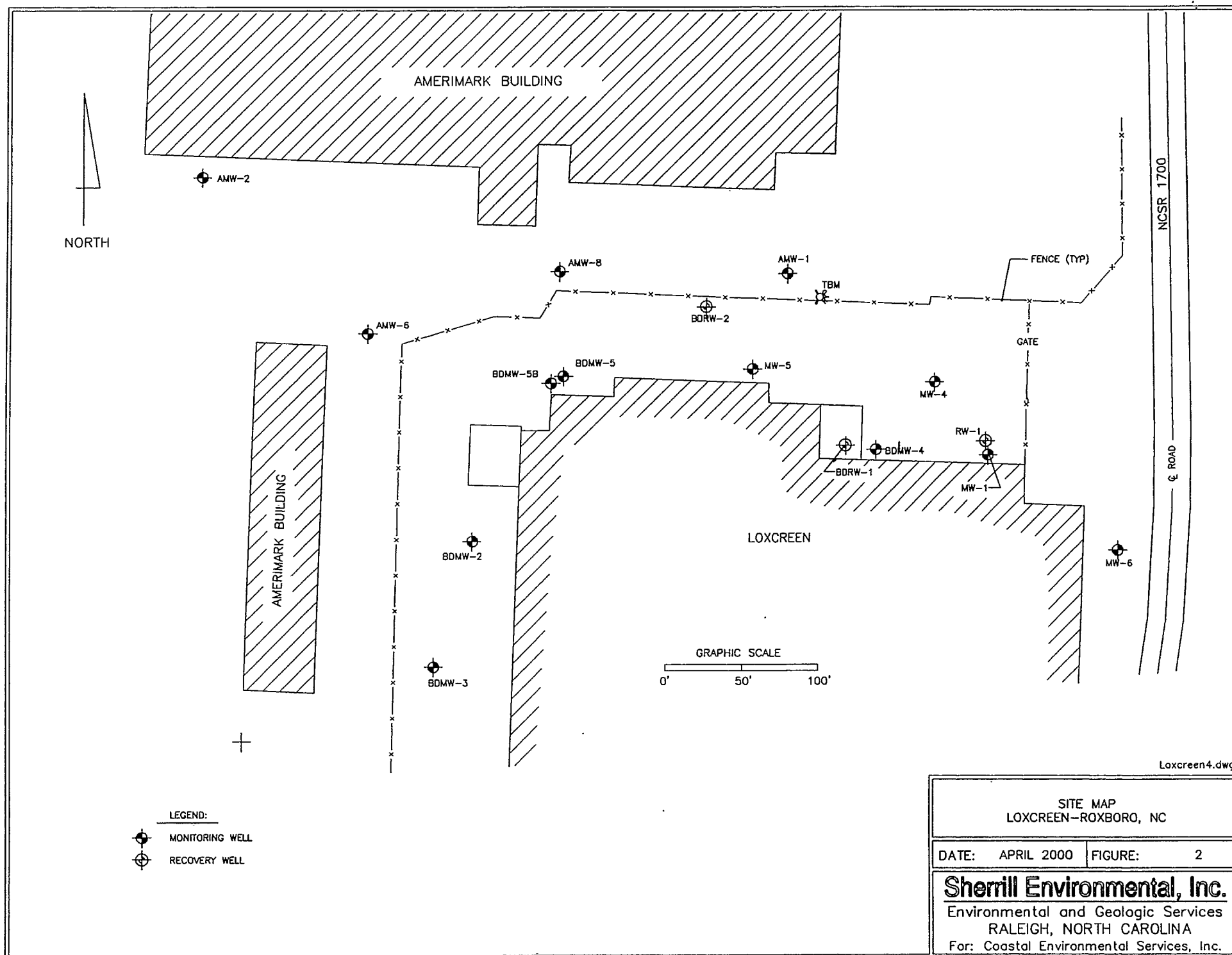
TABLE 2  
GROUNDWATER ANALYSES  
LOXCREEN COMPANY

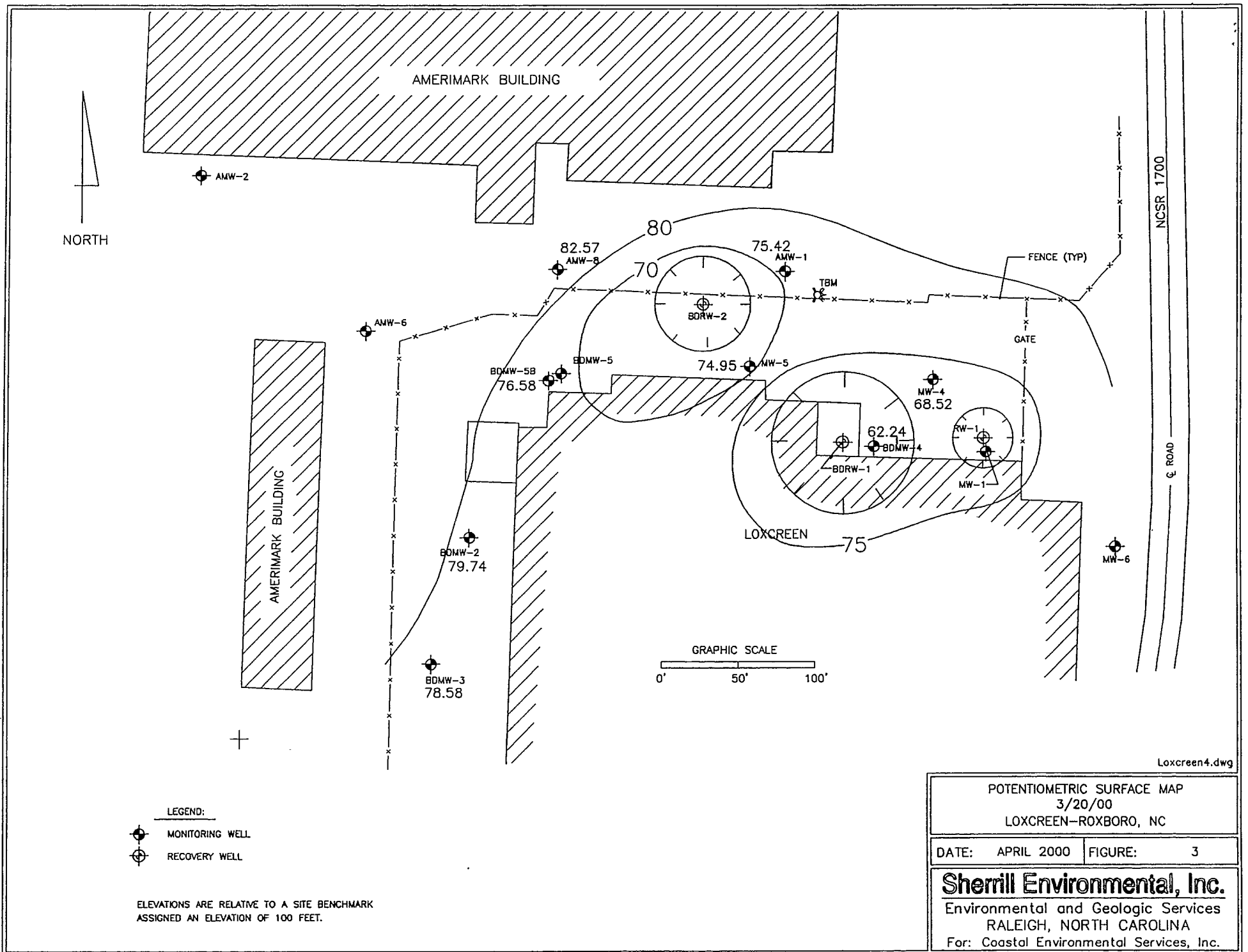
Sherrill Environmental, Inc.

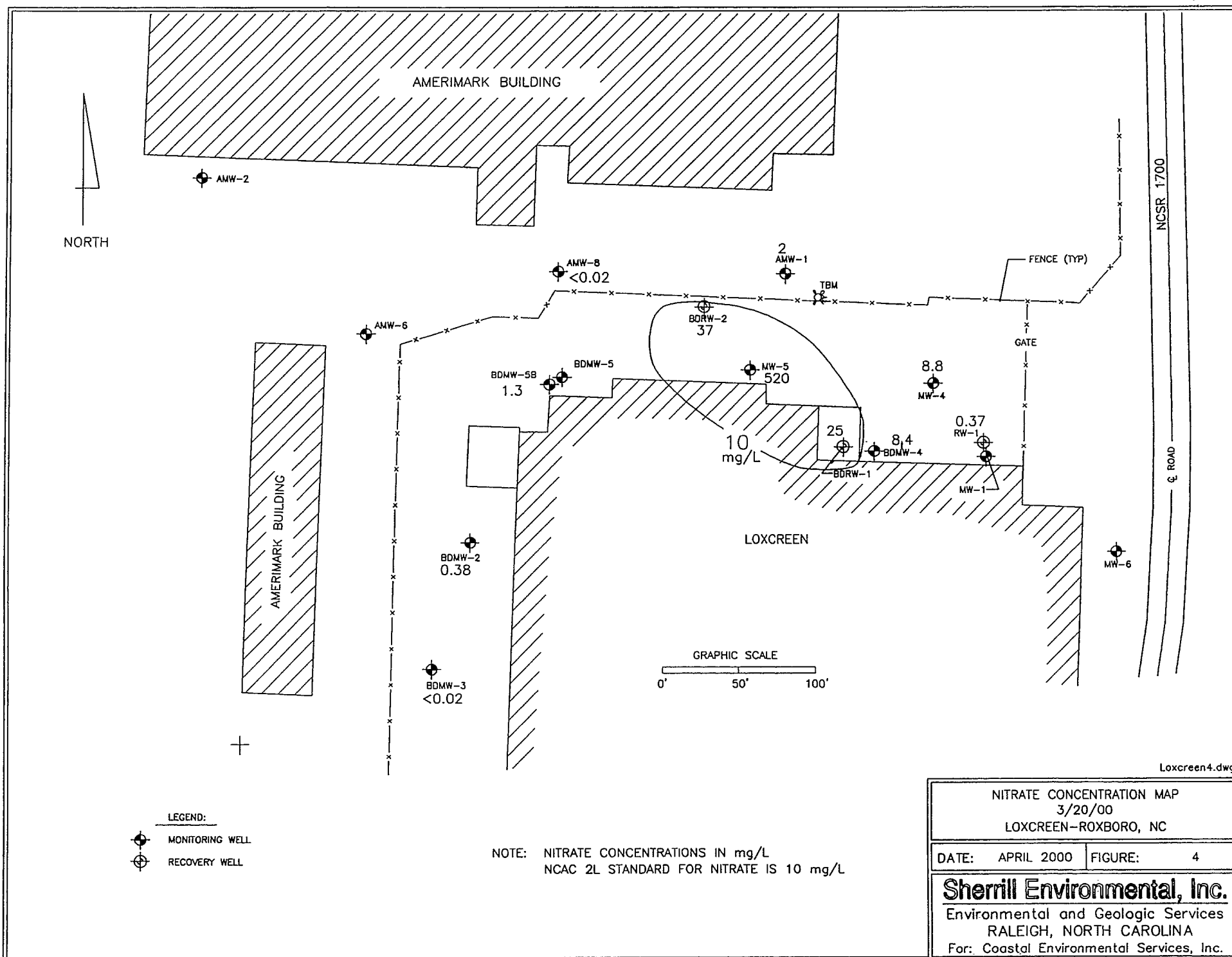
	Mar-96	Sep-96	Mar-97	Mar-98	Sep-98	Mar-99	Sep-99	Mar-00
	Nitrate Concentrations in mg/L							
BDMW-2			0.11	5.9	<0.4	<0.02	<0.02	0.38
BDMW-3			NS	NS	NS	<0.02	<0.02	<0.02
BDMW-4	<b>11.9</b>	1.8	6.7	<b>13.0</b>	2.6	9.4	<b>12</b>	8.4
BDMW-5			NS	NS	<b>11</b>	<0.02	<0.02	NS
BDMW-5B								1.3
MW-4	<b>12.2</b>	<b>11.7</b>	3.4	<b>15.7</b>	4.6	7.9	5.3	8.8
MW-5	<b>17.5</b>	<b>137</b>	<b>187</b>	<b>18.6</b>	<b>240</b>	<b>460</b>	<b>360</b>	<b>520</b>
AMW-1	1.4	0.2	1.1	1.7	3.2	1.8	1.5	2
AMW-6	5.5	1.4	5.6	3.2	3.4	1.7	NS	NS
AMW-8								<0.02
BDRW-1		<b>21.5</b>	<b>10.2</b>	<b>18.6</b>	<b>33</b>	<b>160</b>	<b>35</b>	<b>25</b>
BDRW-2		<b>22</b>	<b>16</b>	<0.1	<b>93</b>	<b>26</b>	<b>26</b>	<b>37</b>
RW-1			0.5	0.6	0.5	0.26	0.25	0.37

Bold values are above the 10 mg/L NCAC 2L Standard listed for Nitrate.

DATE: MAY 1999	FIGURE: 1
----------------	-----------







Loxgreen4.dwg



Environmental Conservation Laboratories, Inc.  
10207 General Drive  
Orlando, Florida 32824-8529  
407 / 826-5314  
Fax 407 / 850-6945  
www.encolabs.com



DHRS Certification No. E83182

CLIENT : Sherrill Environmental, Inc.  
ADDRESS: 7309 Still Pond Road  
Raleigh, NC 27613

REPORT # : ORL10286  
DATE SUBMITTED: March 22, 2000  
DATE REPORTED : March 28, 2000

PAGE 1 OF 9

ATTENTION: Jack Sherrill

#### SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

PROJECT #: Project #00-10

Loxscreen - Roxboro, NC

03/20/00

#1	- AM-1	@ 14:30
#2	- AM-8	@ 15:00
#3	- BDMW-2	@ 13:00
#4	- BDMW-3	@ 13:30
#5	- BDMW-4	@ 11:15
#6	- BDMW-5	@ 12:30
#7	- MW-4	@ 10:45
#8	- MW-5	@ 11:45
#9	- RW-1	@ 15:30
#10	- BDRW-1	@ 15:45
#11	- BDRW-2	@ 16:00
#12	- TRIP BLANK	

PROJECT MANAGER

A handwritten signature in black ink, appearing to read "Marcia C. Terlep", written over a horizontal line.

Marcia C. Terlep

ENCO LABORATORIES

REPORT # : ORL10286

DATE REPORTED: March 28, 2000

REFERENCE : Project #00-10

PROJECT NAME : Loxcreen - Roxboro, NC

PAGE 2 OF 9

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>AM-1</u>	<u>AM-8</u>	<u>Units</u>
Nitrate-N	353.1	2.0	0.020 U	mg/L
Date Analyzed		03/27/00	03/27/00	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : ORL10286

DATE REPORTED: March 28, 2000

REFERENCE : Project #00-10

PROJECT NAME : Loxcreen - Roxboro, NC

PAGE 3 OF 9

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>BDMW-2</u>	<u>BDMW-3</u>	<u>Units</u>
Nitrate-N	353.1	0.38	0.020 U	mg/L
Date Analyzed		03/27/00	03/27/00	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : ORL10286

DATE REPORTED: March 28, 2000

REFERENCE : Project #00-10

PROJECT NAME : Loxcreen - Roxboro, NC

PAGE 4 OF 9

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>BDMW-4</u>	<u>BDMW-5</u>	<u>Units</u>
Nitrate-N	353.1	8.4	1.3 *	mg/L
Date Analyzed		03/27/00	03/27/00	

\* = Analyte value confirmed by duplicate analysis.

ENCO LABORATORIES

REPORT # : ORL10286

DATE REPORTED: March 28, 2000

REFERENCE : Project #00-10

PROJECT NAME : Loxcreen - Roxboro, NC

PAGE 5 OF 9

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MW-4</u>	<u>MW-5</u>	<u>Units</u>
Nitrate-N	353.1	8.8	520	mg/L
Date Analyzed		03/27/00	03/27/00	

ENCO LABORATORIES

REPORT # : ORL10286

DATE REPORTED: March 28, 2000

REFERENCE : Project #00-10

PROJECT NAME : Loxcreen - Roxboro, NC

PAGE 6 OF 9

RESULTS OF ANALYSIS

**VOLATILE AROMATICS**  
**BY EPA METHOD 624 -**

	<u>RW-1</u>	<u>BDRW-1</u>	<u>Units</u>
Methyl tert-butyl ether	7.0 I	NR	µg/L
Benzene	1.0 U	NR	µg/L
Toluene	1.0 U	NR	µg/L
Ethylbenzene	1.0 U	NR	µg/L
m-Xylene & p-Xylene	2.0 U	NR	µg/L
o-Xylene	1.0 U	NR	µg/L
1,3-Dichlorobenzene	1.0 U	NR	µg/L
1,4-Dichlorobenzene	1.0 U	NR	µg/L
1,2-Dichlorobenzene	1.0 U	NR	µg/L

**Surrogate:**

	<u>% RECOV</u>	<u>LIMITS</u>
Dibromofluoromethane	83	52-149
D8-Toluene	89	70-132
Bromofluorobenzene	111	60-135
Date Analyzed	03/23/00	

**MISCELLANEOUS**

	<u>METHOD</u>	<u>RW-1</u>	<u>BDRW-1</u>	<u>Units</u>
Nitrate-N	353.1	0.37	25	mg/L
Date Analyzed		03/27/00	03/27/00	

NR = Analysis not requested for this sample.

U = Compound was analyzed for but not detected to the level shown.

I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES

REPORT # : ORL10286

DATE REPORTED: March 28, 2000

REFERENCE : Project #00-10

PROJECT NAME : Loxcreen - Roxboro, NC

PAGE 7 OF 9

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>BDRW-2</u>	<u>TRIP BLANK</u>	<u>Units</u>
Nitrate-N	353.1	37	NR	mg/L
Date Analyzed		03/27/00		

NR = Analysis not requested for this sample.

**ENCO LABORATORIES**

REPORT # : ORL10286

DATE REPORTED: March 28, 2000

REFERENCE : Project #00-10

PROJECT NAME : Loxcreen - Roxboro, NC

PAGE 8 OF 9

**RESULTS OF ANALYSIS****VOLATILE AROMATICS**  
**BY EPA METHOD 624 -**

	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	6.0 U	µg/L
Benzene	1.0 U	µg/L
Toluene	1.0 U	µg/L
Ethylbenzene	1.0 U	µg/L
m-Xylene & p-Xylene	2.0 U	µg/L
o-Xylene	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L

**Surrogate:**

	<u>% RECOV</u>	<u>LIMITS</u>
Dibromofluoromethane	90	52-149
D8-Toluene	75	70-132
Bromofluorobenzene	79	60-135
Date Analyzed	03/22/00	

U = Compound was analyzed for but not detected to the level shown.



ENCO LABORATORIES

REPORT # : ORL10286

DATE REPORTED: March 28, 2000

REFERENCE : Project #00-10

PROJECT NAME : Loxcreen - Roxboro, NC

PAGE 9 OF 9

QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>MS/MSD/LCS</u>	<u>ACCEPT</u> <u>LIMITS</u>	<u>% RPD</u> <u>MS/MSD</u>	<u>ACCEPT</u> <u>LIMITS</u>
<u>EPA Method 624</u>				
1,1-Dichloroethene	88/ 91/118	44-172	3	44
Benzene	70/ 72/ 95	66-131	3	23
Trichloroethene	88/ 92/104	60-139	4	40
Toluene	75/ 76/ 83	66-127	1	29
Chlorobenzene	75/ 80/ 95	73-125	6	25

NC DEHNR #424

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than

MS = Matrix Spike

MSD = Matrix Spike Duplicate

LCS = Laboratory Control Standard

RPD = Relative Percent Difference

This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.



# ENVIRONMENTAL CONSERVATION LABORATORIES

QSARF # 910153

4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive  
Orlando, Florida 32824-8529  
Ph. (407) 826-5314 • Fax (407) 850-6945

1015 Passport Way  
Cary, North Carolina 27513  
Ph. (919) 677-1669 • Fax (919) 677-9846

ENCO CompQAP No.: 960038G/0

## CHAIN OF CUSTODY RECORD

PROJECT REFERENCE		PROJECT NO.		P.O. NUMBER		MATRIX TYPE		REQUIRED ANALYSIS		PAGE 1 OF 1	
PROJECT LOC. (State)	SAMPLER(S) NAME	PHONE		FAX		SURFACE WATER		GROUND WATER		WASTEWATER	
CLIENT NAME		CLIENT PROJECT MANAGER		PRESERVATIVE		DRINKING WATER		SOIL/SOLID/SEDIMENT		NONAQUEOUS LIQUID (oil, solvent, etc.)	
CLIENT ADDRESS (CITY, STATE, ZIP)		SLUDGE		OTHER		AIR		NITRATE		602 MTBE	
STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	REMARKS					
1 AM-1	3/20/00	1430				X					
2 AM-8		1500				X					
3 BDMW-2		1300				X					
4 BDMW-3		1330				X					
5 BDMW-4		11:15				X					
6 BDMW-5		1230				X					
7 MW-4		1045				X					
8 MW-5		11:45				X					
9 RW-1		1530				X					
10 BDRW-1		1545				X					
11 BDRW-2		1600				X					
12											
13											
14											

SAMPLE KIT PREPARED BY: <u>LB</u>		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
JACKSONVILLE <u>ORLANDO</u>		3/16/00	10:00	<u>John Sherrill</u>		3/16/00	10:00				
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
<u>John Sherrill</u>		3/20/00	18:00	<u>Licky Kast</u>		3/21/00	15:45	<u>Licky Kast</u>			
RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
<u>Licky Kast</u>				<u>Licky Kast</u>		3/21/00	15:45				
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT		ENCO LOG NO.		REMARKS			
<u>Licky Kast</u>		3/22/00	1030	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		ORL102070					



**SHERRILL ENVIRONMENTAL, INC.**  
Environmental and Geologic Services

October 21, 1999

Mr. Jay Zimmerman  
NCDENR  
Groundwater Section -- Raleigh Regional Office  
Post Office Box 27687  
Raleigh, NC 27611

Subject:       Semiannual Monitoring for Nitrate  
                  Incident No. 9179 (Shared)  
                  The Loxcreen Company  
                  Roxboro, North Carolina

OCT 22 1999

Dear Mr. Zimmerman:

Sherrill Environmental, Inc. (Sherrill), on behalf of The Loxcreen Company (Loxcreen), conducted semiannual groundwater monitoring on September 14, 1999, at the Roxboro, North Carolina facility (Figure 1). Groundwater samples were collected from eight monitoring wells and three recovery wells (Figure 2). The eleven groundwater samples were analyzed for nitrate. In addition, one groundwater sample was collected from recovery well RW-1 and analyzed for volatile organic compounds (BTEX).

**Field Activities**

Groundwater sampling was performed by Sherrill personnel on September 14, 1999. Activities were initiated by unlocking and opening the monitoring wells to allow the groundwater levels to equilibrate with atmospheric pressure. The depth to water was measured in each monitoring well with an electronic water level indicator (Table 1). Water levels were not measured in the recovery wells. Well volumes were calculated, and all 2-inch diameter wells were purged a minimum of three volumes. Purging and sampling were performed with a new disposable polyethylene bailer for each monitoring well. Groundwater samples were collected from the three recovery wells at each well's discharge sampling port. All samples were collected in laboratory-supplied glassware, placed in an ice-filled cooler, and transferred to a laboratory certified by NCDENR using standard, chain-of-custody procedures.

**Data Analysis**

A potentiometric surface map was generated using the groundwater level measurements obtained on September 14, 1999 (Figure 3). The data suggest a significant radius of influence for recovery wells BDRW-1 and BDRW-2. The recovery wells appear to be controlling the migration of the nitrate contaminant plume.

The groundwater analysis of the samples collected on September 14, 1999 is summarized on Table 2, and the laboratory report is attached. The groundwater samples contained nitrate ( $\text{NO}_3$ ) in concentrations that ranged from less than the detection limit of 0.02 mg/L to 360 mg/L. Four of the eleven groundwater samples contained concentrations of nitrate above the NCAC 2L Standard of 10 mg/L (Figure 4). The groundwater sample from MW-5 had a concentration of nitrate at 360 mg/L. The groundwater samples from recovery wells BDRW-1 and BDRW-2 had concentrations of nitrate at 35 mg/L and 26 mg/L, respectively.

The nitrate groundwater contamination is the result of past spillage/releases of nitric acid. The pH of the groundwater samples were measured in the field during sampling. The pH values ranged between 5.68 and 6.25. These values are not as low as might be expected from an acid release.

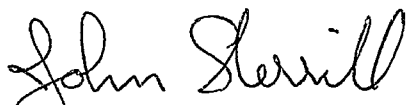
In summary, the groundwater plume of nitrate contamination appears to be limited to onsite. Only two of the eight monitoring wells had a groundwater sample with nitrate concentrations above the NCAC 2L Standard. The recovery wells appear to be controlling the migration of the plume. The recovery wells are functioning to clean the site as the nitrate concentrations in the water being removed is above the NCAC 2L Standard.

The groundwater sample collected from RW-1 was also analyzed for volatile organic compounds (BTEX) and the gasoline additives IPE and MTBE. Benzene and MTBE were detected in concentration of 2.4 ug/L and 5.0 ug/L, respectively. The NCAC 2L Standard for benzene and MTBE are 1 ug/L and 200 ug/L, respectively. These results are consistent with past data in that low levels of gasoline related compounds continue to be detected in the groundwater samples from the remediation well RW-1.

The next monitoring event for nitrate is scheduled for March 2000. If you have any additional questions or need additional information, please contact us at (919) 420-7822.

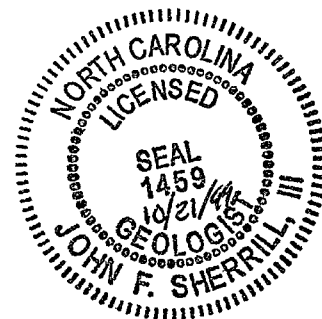
Sincerely,

**SHERRILL ENVIRONMENTAL, INC.**



John (Jack) F. Sherrill, P.G.

CC: Chuck Dix, The Loxcreen Company  
Butch Smith, Watson & Barron LTD



**TABLE 1**  
**GROUNDWATER TABLE MEASUREMENTS**  
**LOXCREEN COMPANY, ROXBORO, NC**

**Sherrill Environmental, Inc.**

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AM-1	94.47	15.34	79.13	21.9	72.57
AM-6	88.24	5.14	83.1	9.48	78.76
BDMW-2	97.34	14.63	82.71	19.44	77.9
BDMW-3	97.56	20.37	77.19	22.65	74.91
BDMW-4	97.96	38.12	59.84	40.54	57.42
MW-4	97.76	27.52	70.24	30.54	67.22
MW-5	97.45	18.87	78.58	25.47	71.98
BDRW-1	97.24	NM		NM	
BDRW-2	95.73	NM		NM	
RW-1	97.41	NM		NM	
MW-1	98.07	NM		20.51	77.56
BDMW-5	96.85	19.86	76.99	24.93	71.92

Elevations are relative to a site benchmark assigned an elevation of 100 feet.

TOC = Top of casing

Depth = Depth to groundwater from TOC

NM = Not Measured

All measurements are in feet.

GW-DatTbl-99.xlsField 9-99

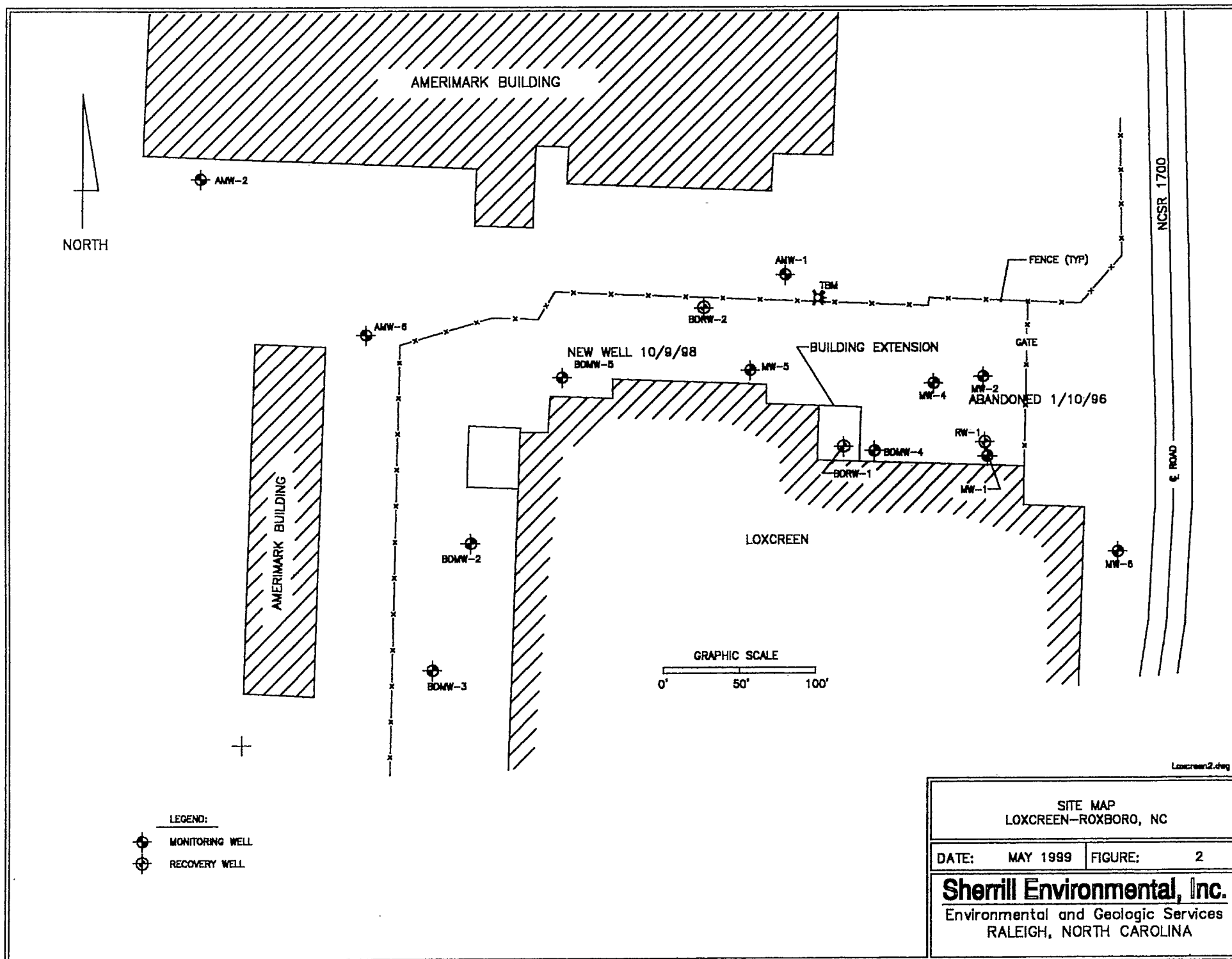
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LOXCREEN COMPANY

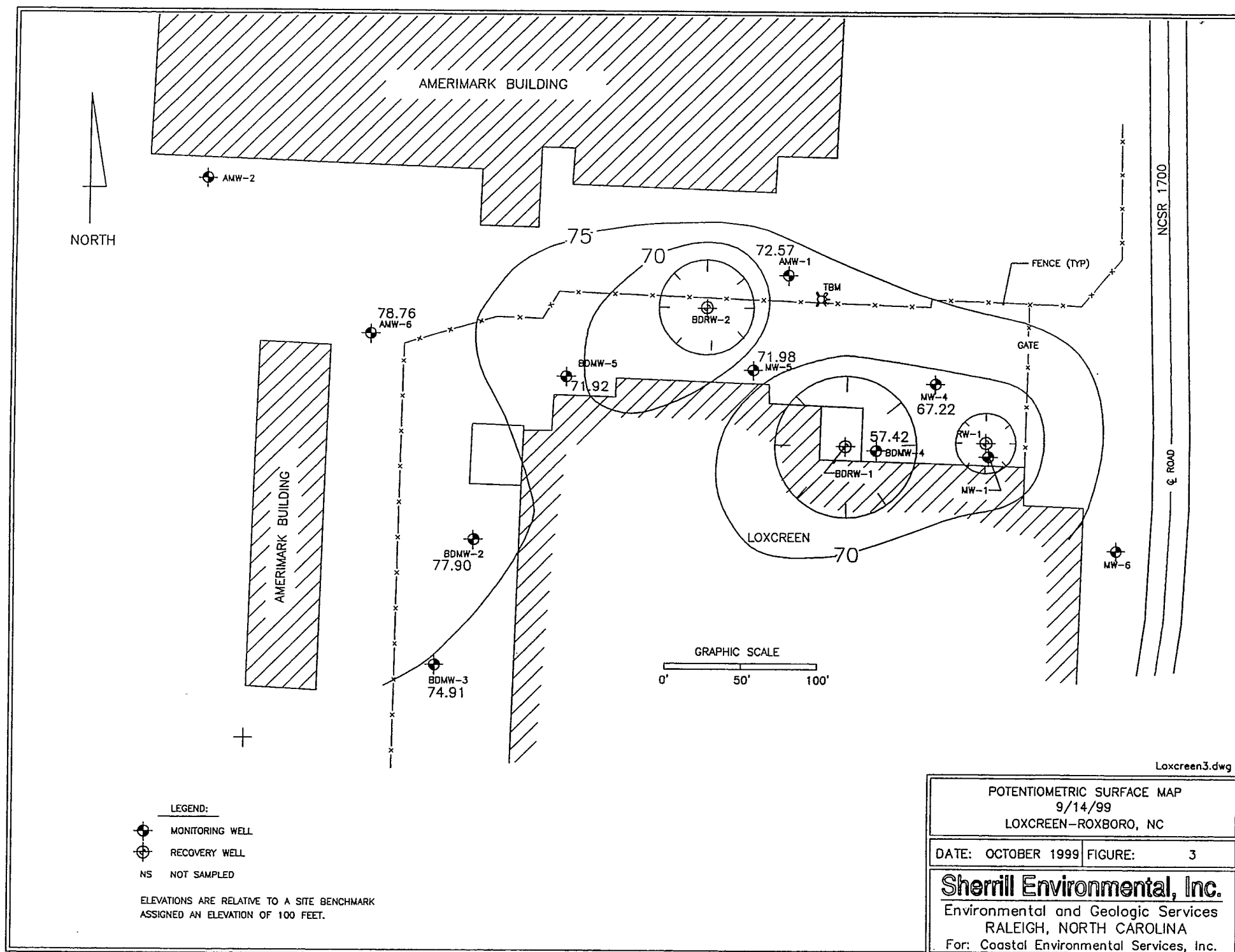
Sherrill Environmental, Inc.

	Mar-96	Sep-96	Mar-97	Mar-98	Sep-98	Mar-99	Sep-99
	Nitrate Concentrations in mg/L						
BDMW-2			0.11	5.9	<0.4	<0.02	<0.02
BDMW-3			NS	NS	NS	<0.02	<0.02
MW-4	<b>12.2</b>	<b>11.7</b>	3.4	<b>15.7</b>	4.6	7.9	5.3
MW-5	<b>17.5</b>	<b>137</b>	<b>187</b>	<b>18.6</b>	<b>240</b>	<b>460</b>	<b>360</b>
AMW-1	1.4	0.2	1.1	1.7	3.2	1.8	1.5
AMW-6	5.5	1.4	5.6	3.2	3.4	1.7	NS
BDMW-4	<b>11.9</b>	1.8	6.7	<b>13.0</b>	2.6	9.4	<b>12</b>
BDRW-1		<b>21.5</b>	<b>10.2</b>	<b>18.6</b>	<b>33</b>	<b>160</b>	<b>35</b>
BDRW-2		<b>22</b>	<b>16</b>	<0.1	<b>93</b>	<b>26</b>	<b>26</b>
RW-1			0.5	0.6	0.5	0.26	0.25
BDMW-5			NS	NS	<b>11</b>	<0.02	<0.02

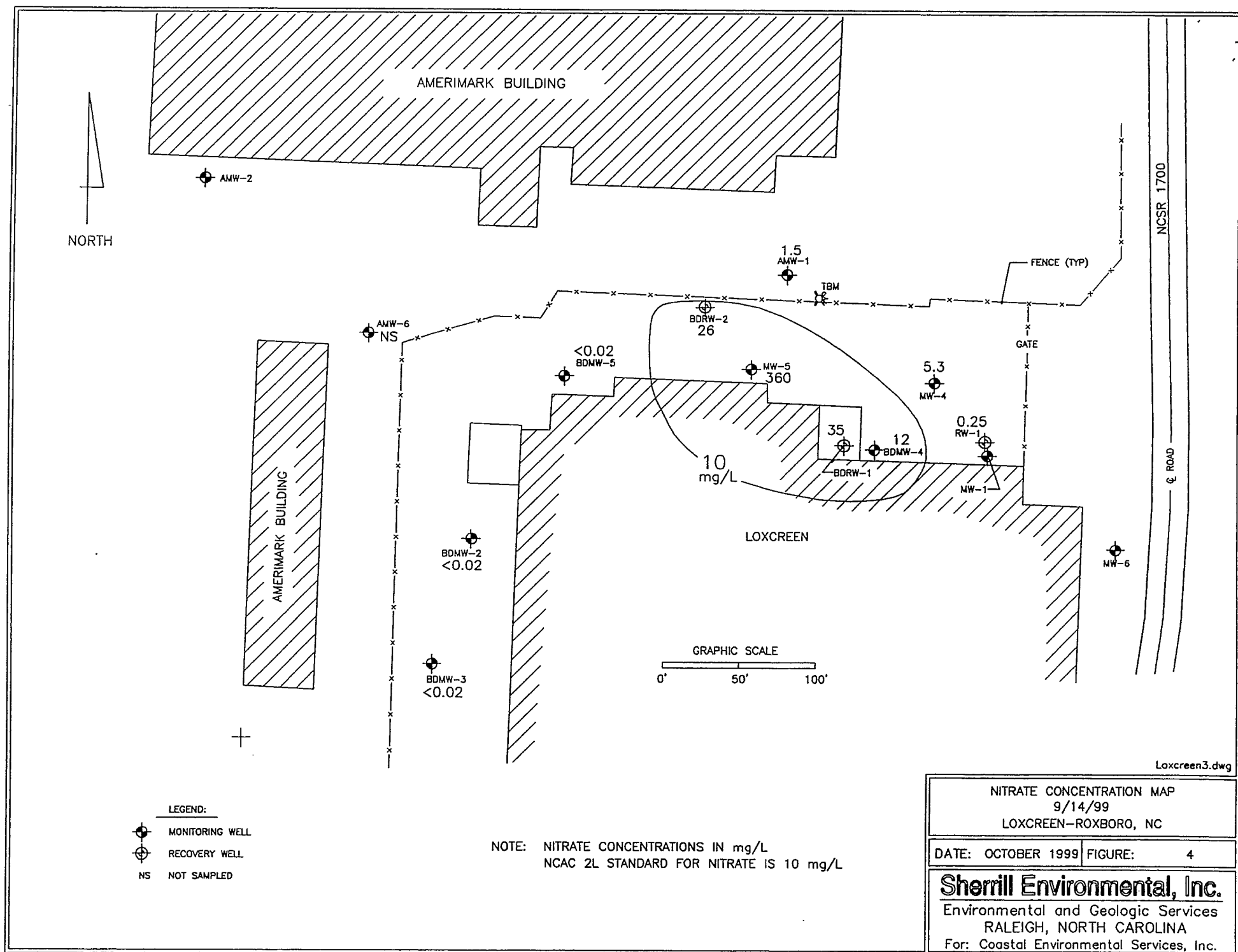
Bold values are above the 10 mg/L NCAC 2L Standard listed for Nitrate.

GW-DatTbl-99.xlsNitrate9-99









Environmental Conservation Laboratories, Inc.  
10207 General Drive  
Orlando, Florida 32824-8529  
407 / 826-5314  
Fax 407 / 850-6945  
www.encolabs.com



DHRS Certification No. E83182

CLIENT : Sherrill Environmental, Inc.  
ADDRESS: 7309 Still Pond Road  
Raleigh, NC 27613

REPORT # : OR8256  
DATE SUBMITTED: September 22, 1999  
DATE REPORTED : September 30, 1999

PAGE 1 OF 8

ATTENTION: Jack Sherrill

#### SAMPLE IDENTIFICATION

Samples submitted and  
identified by client as:

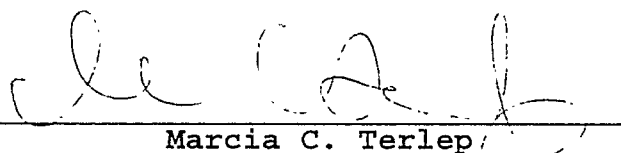
PROJECT #: 99-46

Loxcreen-Nitrate

09/20/99

#1	- AM-1	@ 16:30
#2	- BDMW-2	@ 15:10
#3	- BDMW-3	@ 15:35
#4	- BDMW-4	@ 11:15
#5	- MW-4	@ 10:45
#6	- MW-5	@ 12:00
#7	- BDRW-1	@ 16:00
#8	- BDRW-2	@ 16:10
#9	- RW-1	@ 15:50
#11	- BDMW-5	@ 13:30

PROJECT MANAGER

  
Marcia C. Terlep

ENCO LABORATORIES  
REPORT # : OR8256  
DATE REPORTED: September 30, 1999  
REFERENCE : 99-46  
PROJECT NAME : Loxcreen-Nitrate

PAGE 2 OF 8

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>AM-1</u>	<u>BDMW-2</u>	<u>Units</u>
Nitrate-N	353.1	1.5	0.020 U	mg/L
Date Analyzed		09/29/99	09/29/99	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : OR8256

DATE REPORTED: September 30, 1999

REFERENCE : 99-46

PROJECT NAME : Loxcreen-Nitrate

PAGE 3 OF 8

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>BDMW-3</u>	<u>BDMW-4</u>	<u>Units</u>
Nitrate-N	353.1	0.020 U	12	mg/L
Date Analyzed		09/29/99	09/29/99	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES  
REPORT # : OR8256  
DATE REPORTED: September 30, 1999  
REFERENCE : 99-46  
PROJECT NAME : Loxcreeen-Nitrate

PAGE 4 OF 8

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>MW-4</u>	<u>MW-5</u>	<u>Units</u>
Nitrate-N	353.1	5.3	360	mg/L
Date Analyzed		09/29/99	09/29/99	

ENCO LABORATORIES  
REPORT # : OR8256  
DATE REPORTED: September 30, 1999  
REFERENCE : 99-46  
PROJECT NAME : Loxcreen-Nitrate

PAGE 5 OF 8

RESULTS OF ANALYSIS

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>BDRW-1</u>	<u>BDRW-2</u>	<u>Units</u>
Nitrate-N	353.1	35	26	mg/L
Date Analyzed		09/29/99	09/29/99	

ENCO LABORATORIES

REPORT # : OR8256  
 DATE REPORTED: September 30, 1999  
 REFERENCE : 99-46  
 PROJECT NAME : Loxcreen-Nitrate

PAGE 6 OF 8

RESULTS OF ANALYSIS

EPA METHOD 602 -  
VOLATILE AROMATICS

	<u>RW-1</u>	<u>BDMW-5</u>	<u>Units</u>
Methyl tert-butyl ether	5.0	NR	µg/L
Benzene	2.4	NR	µg/L
Toluene	1.0 U	NR	µg/L
Chlorobenzene	1.0 U	NR	µg/L
Ethylbenzene	1.0 U	NR	µg/L
m-Xylene & p-Xylene	2.0 U	NR	µg/L
o-Xylene	1.0 U	NR	µg/L
1,3-Dichlorobenzene	1.0 U	NR	µg/L
1,4-Dichlorobenzene	1.0 U	NR	µg/L
1,2-Dichlorobenzene	1.0 U	NR	µg/L

Surrogate:

	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	114	64-140
Date Analyzed	09/23/99	

<u>MISCELLANEOUS</u>	<u>METHOD</u>	<u>RW-1</u>	<u>BDMW-5</u>	<u>Units</u>
Nitrate-N	353.1	0.25	0.020 U	mg/L
Date Analyzed		09/29/99	09/29/99	

NR = Analysis not requested for this sample.

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES

REPORT # : OR8256  
 DATE REPORTED: September 30, 1999  
 REFERENCE : 99-46  
 PROJECT NAME : Loxcreen-Nitrate

PAGE 7 OF 8

RESULTS OF ANALYSIS

EPA METHOD 602 -  
VOLATILE AROMATICS

	<u>LAB BLANK</u>	<u>Units</u>
Methyl tert-butyl ether	2.0 U	µg/L
Benzene	1.0 U	µg/L
Toluene	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Ethylbenzene	1.0 U	µg/L
m-Xylene & p-Xylene	2.0 U	µg/L
o-Xylene	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L
<u>Surrogate:</u>	<u>% RECOV</u>	<u>LIMITS</u>
Bromofluorobenzene	140	64-140
Date Analyzed	09/23/99	

U = Compound was analyzed for but not detected to the level shown.



ENCO LABORATORIES  
REPORT # : OR8256  
DATE REPORTED: September 30, 1999  
REFERENCE : 99-46  
PROJECT NAME : Loxcreen-Nitrate

PAGE 8 OF 8

QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>MS/MSD/LCS</u>	<u>ACCEPT</u> <u>LIMITS</u>	<u>% RPD</u> <u>MS/MSD</u>	<u>ACCEPT</u> <u>LIMITS</u>
<u>EPA Method 602</u>				
Benzene	138/120/ 94	72-134	14	20
Toluene	130/120/ 90	72-124	8	19
Ethylbenzene	130/132/ 92	67-129	2	21
o-Xylene	128/134/ 90	66-131	4	21

NC DEHNR #424

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than  
MS = Matrix Spike  
MSD = Matrix Spike Duplicate  
LCS = Laboratory Control Standard  
RPD = Relative Percent Difference

This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

## ENVIRONMENTAL CONSERVATION LABORATORIES

QSARF # \_\_\_\_\_

4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive  
Orlando, Florida 32824-8529  
Ph. (407) 826-5314 • Fax (407) 850-6945

1015 Passport Way  
Cary, North Carolina 27513  
Ph. (919) 677-1669 • Fax (919) 677-9846

ENCO CompQAP No.: 960038G/0

## CHAIN OF CUSTODY RECORD

[illegible]

RECORD OF COMMUNICATION

GWS STAFF MEMBER: Karen Harmon

DATE: 1/21/97 TIME: 9:00 am

PHONE CALL FROM/TO: FROM Derrick Bell  
PHONE: → #301 TE

INCIDENT	
#	no
Rank	20E
County	PS
Manager	STA

MEETING LOCATION (if applicable):

INCIDENT NAME: LOXGREEN-BRITE DIP

INCIDENT LOCATION: Roxboro

PURPOSE OF CALL: 1/8/97 mon. rpt deficiencies + red. mon  
Schedule

SUMMARY OF COMMUNICATION:

*deficiencies*  
(1) no seal  
(2) no monitoring of <sup>existing</sup> perimeter wells to est. plume boundary and no NO<sub>3</sub> isoc. map  
(3) reduce mon. schedule to 23 → <sup>TE's Bell</sup> Said he would ask AP + call back,  
Also discussed closure requirements

FOLLOWING ACTION(S) REQUIRED:

COPY(IES) TO:

H:\COMMUNIC.REC

GWS STAFF MEMBER:

Karen Harmon

DATE:

1/21/97

TIME:

9:00 am

PHONE CALL FROM/TO:

FROM

Derrick Bell

TE

PHONE:

→ #301

INCIDENT

#

no

Rank

20E

County

PS

Manager

STA

MEETING LOCATION (if applicable):

INCIDENT NAME:

LUXGREEN-BRITE DIP

INCIDENT LOCATION:

Roxboro

PURPOSE OF CALL:

1/8/97 mon. rpt deficiencies + red. mon  
schedule

SUMMARY OF COMMUNICATION:

*deficiencies*

① no seal

② no monitoring of existing perimeter wells to est. plume boundary and no NO<sub>3</sub> isoc. map

③ reduce mon. schedule to 23

*TE's Bell  
said he would  
ask AP + cal  
back*

Also discussed closure requirements

FOLLOWING ACTION(S) REQUIRED:

COPY(IES) TO:

H:\COMMUNIC.REC



KAH reviewed 1/16/96

Deficiencies

\* no seal

\* no Nitrate isoconcentration map

\* plume not defined altho mws could sampled.

\* apparently nat. att. - no info

LOXCREEN - BRITEDIP

no inc. #

20E

PS

STA

P.O. Box 41087

Raleigh, NC 27629

919-876-5115

800-849-5115

FAX 919-790-8273

January 8, 1997

NO<sub>3</sub> 8.476 \* NO<sub>3</sub> STD  
SAM. 12/3/96 (399)

Ms. Karen Harmon  
North Carolina Department of Environment, Health and  
Natural Resources  
Division of Water Quality  
Raleigh Regional Office  
Post Office Box 27687  
Raleigh, North Carolina 27611

Subject: Quarterly Monitoring Report of NO<sub>3</sub> Groundwater Contamination  
The Loxcreen Company in Roxboro, North Carolina  
Triangle Project No. 034-3909

Dear Ms. Harmon:

Triangle Environmental, Inc. (Triangle) has completed the quarterly sampling of the monitoring wells and recovery wells installed to assess the nitrate groundwater contamination as contracted with The Loxcreen Company (Loxcreen). This report summarizes the results of the fourth quarter sampling event of 1996.

A cumulative summary table of the laboratory results is enclosed along with a figure displaying the location of the wells. The complete laboratory report for this sampling event is also enclosed. The laboratory reports for the previous quarters have been included in past quarterly reports that have been forwarded to the DWQ. Please notify us if you should need any additional copies of prior laboratory reports.

For the December 1996 sampling event, Triangle sampled five monitoring wells (three on site and two off site). Triangle also sampled the two on-site recovery wells. Groundwater samples were analyzed for nitrate by a DWQ-certified laboratory.

Groundwater samples collected in December 1996 from monitoring wells AMW-1 and AMW-6 contained nitrate at concentrations less than the Groundwater Standard of 10 mg/L as listed in NCAC 2L. The nitrate concentration detected in the groundwater sample from monitoring well BDMW-4 was also below the Groundwater Standard in the December 1996 sample (4.75 mg/L). The groundwater sample from MW-4 contained a concentration of nitrate that was slightly above the Groundwater Standard for the December 1996 sample (11.91 mg/L).

Asked  
Derrick Ball  
to call ~ def.  
on ~~Mon.~~ Tues.

The highest concentrations of nitrate were detected in the groundwater samples from MW-5. The nitrate concentration for the December 1996 sampling event was 84.76 mg/L.

Additionally, the two on-site recovery wells are also included on the quarterly sampling program. Laboratory results indicate that the groundwater samples for the two recovery wells, BDRW-1 and BDRW-2, contain nitrate at concentrations of 17.38 mg/L and 13.69 mg/L, respectively.

As described in previous reports, the recovered groundwater is transferred to the pretreatment plant on site which discharges to the Roxboro POTW under a DWQ permit.

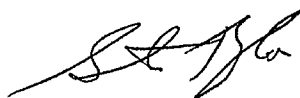
In addition to groundwater recovery and quarterly monitoring, Loxcreen has recently reconstructed their Brite Dip Line. This construction included temporarily shutting down the production line, removing the old floor under the line, pouring a new floor, installing a floor coating system impervious to the Brite Dip chemistry, and installing a floor wash down system which automatically flushes any spills on the floor to a collection sump. The water from the wash down is also collected and transferred to the on site pre-treatment plant. This action completes and makes permanent the structural improvements made to eliminate the discharge of waste water through the floor of the facility.

Loxcreen has contracted with Triangle to sample the monitoring and recovery wells on a quarterly basis. The sampling of the Brite Dip wells will be performed for Loxcreen during the next quarterly sampling event scheduled for March 1997.

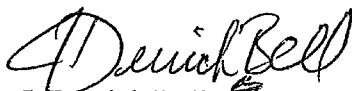
Please contact us if you should have any questions or comments at (919) 876-5115.

Sincerely,

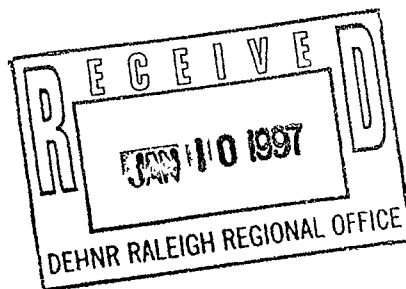
**TRIANGLE ENVIRONMENTAL, INC.**



R. Stan Taylor, PE  
Vice President



J. Derrick Bell  
Project Manager



JDB/ra  
Enclosure

xc: Mr. Ron Rhymer-Loxcreen  
Mr. Larry Wilkerson-Loxcreen  
Mr. Charles Dix-Loxcreen

MW 4,5    AMW 1,2,3    2-4  
MW 4,5 ; AMW 1,2,3 ; BDMW 4 ; BDRW 1,2.

AMW 2    BDM 2,3

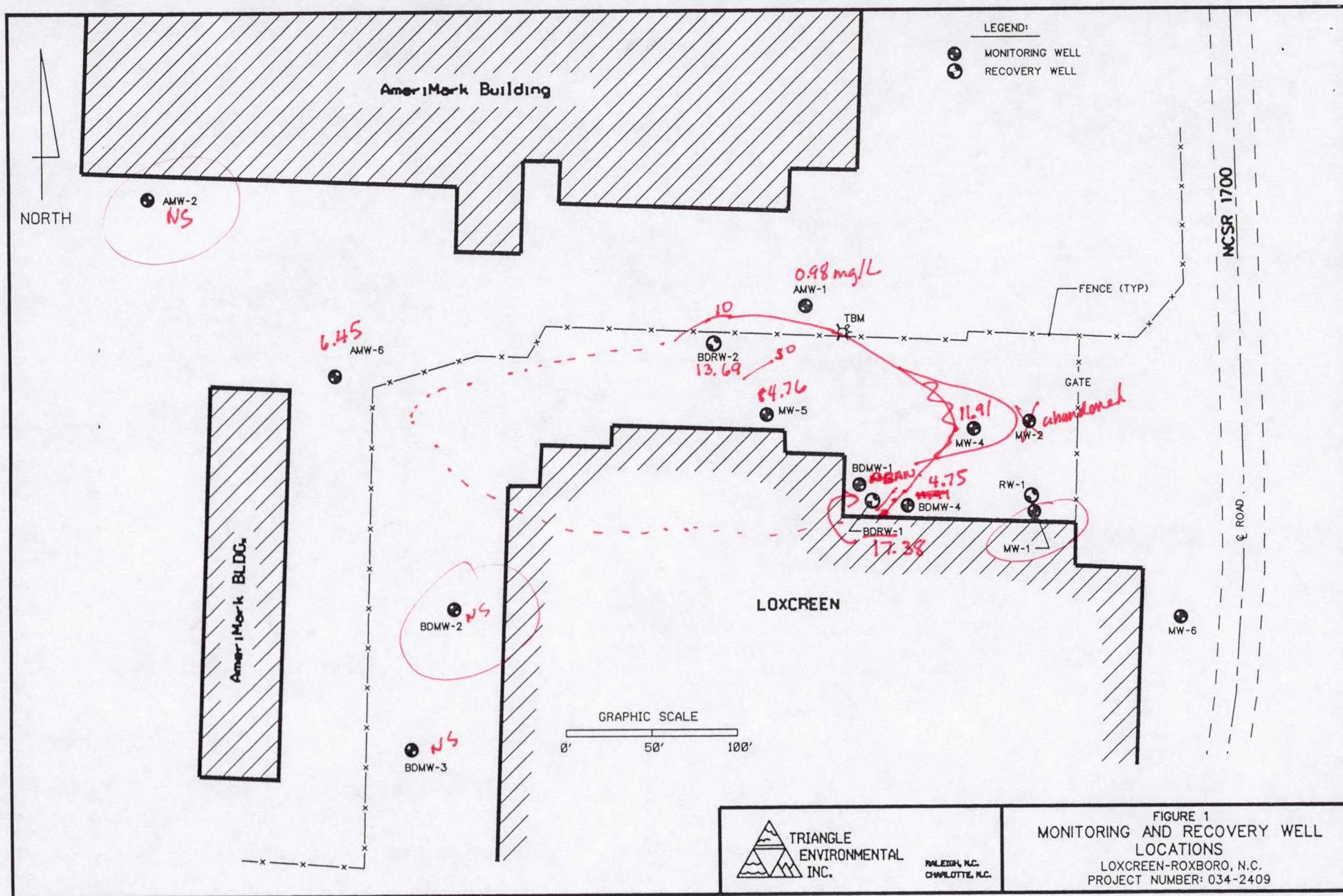


**LOXCREEN COMPANY**  
**Brite Dip Monitoring Wells**

**December 1996**  
**Quarterly Monitoring Cumulative Table**  
 Concentrations are in milligrams per liter (mg/L)

MW / Date	Dec-94	Mar-95	Jun-95	Aug-95	Sep-95	Dec-95	Mar-96	Jun-96	Sep-96	Dec-96
BDMW-1	27	34.9	57	NS	150	78.1	(abandoned)	(abandoned)	(abandoned)	(abandoned)
BDMW-2	NS	<0.05	0.03	NS	<0.02	<0.02	NS	NS	NS	NS
BDMW-3	0.04	0.11	0.32	NS	0.03	<0.02	NS	NS	NS	NS
MW-4				16	19	8.31	12.2	10.65	11.7	11.91
MW-5				50	130	43.1	17.5	46.6	137	84.76
AMW-1					0.78	1.16	1.2	1.6	0.188	0.98
AMW-2							1.39	NS	NS	NS
AMW-6							5.52	2.65	1.35	6.45
BDMW-4							11.9	14.9	1.79	4.75
BDRW-1									21.5	17.38
BDRW-2									22	13.69

North Carolina Groundwater Standards Limit for Nitrate = 10 mg/L



# HYDROLOGIC, INC.

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## FINAL REPORT OF ANALYSES

HYDROLOGIC MORRISVILLE  
2500 GATEWAY CENTRE BOULV  
SUITE 900  
MORRISVILLE, NC 27560-  
Attn: LISA SNIPES

PROJECT NAME: TRIANGLE 963761  
REPORT DATE: 12/06/96

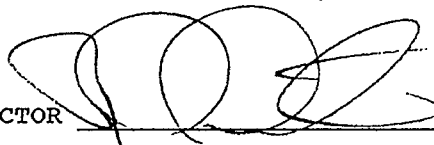
SAMPLE NUMBER- 95225 SAMPLE ID- TRIANGLE MW-5  
DATE SAMPLED- 12/03/96  
DATE RECEIVED- 12/04/96 SAMPLER- JD BELL  
TIME RECEIVED- 1000 DELIVERED BY- FED EX

SAMPLE MATRIX- WW  
TIME SAMPLED- 1605  
RECEIVED BY- DHT

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS		RESULT UNITS	DET.
		DATE	BY		LIMIT
NITRATE	EPA 352.1	12/05/96	APT	84.76 mg/l	0.10

LABORATORY DIRECTOR



# HYDROLOGIC, INC.

---

## FINAL REPORT OF ANALYSES

HYDROLOGIC MORRISVILLE  
2500 GATEWAY CENTRE BOULV  
SUITE 900  
MORRISVILLE, NC 27560-  
Attn: LISA SNIPES

PROJECT NAME: TRIANGLE 963761  
REPORT DATE: 12/06/96

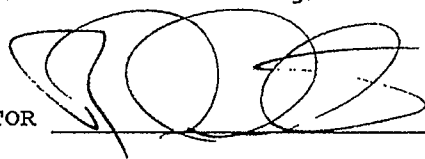
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DATE SAMPLED- 12/03/96  
DATE RECEIVED- 12/04/96 SAMPLER- JD BELL  
TIME RECEIVED- 1000 DELIVERED BY- FED EX

SAMPLE MATRIX- WW  
TIME SAMPLED- 1615  
RECEIVED BY- DHT

Page 1 of 1

ANALYSIS	ANALYSIS				DET. LIMIT
	METHOD	DATE	BY	RESULT UNITS	
NITRATE	EPA 352.1	12/05/96	APT	11.91 mg/l	0.10

LABORATORY DIRECTOR



# HYDROLOGIC, INC.

---

## FINAL REPORT OF ANALYSES

HYDROLOGIC MORRISVILLE  
2500 GATEWAY CENTRE BOULV  
SUITE 900  
MORRISVILLE, NC 27560-  
Attn: LISA SNIPES

PROJECT NAME: TRIANGLE 963761  
REPORT DATE: 12/06/96

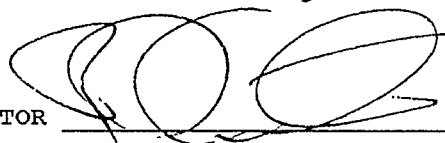
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DATE SAMPLED- 12/03/96  
DATE RECEIVED- 12/04/96 SAMPLER- JD BELL  
TIME RECEIVED- 1000 DELIVERED BY- FED EX

SAMPLE MATRIX- WW  
TIME SAMPLED- 1620  
RECEIVED BY- DHT

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS		RESULT UNITS	DET.
		DATE	BY		LIMIT
NITRATE	EPA 352.1	12/05/96	APT	4.75 mg/l	0.10

LABORATORY DIRECTOR



# HYDROLOGIC, INC.

---

## FINAL REPORT OF ANALYSES

HYDROLOGIC MORRISVILLE  
2500 GATEWAY CENTRE BOULV  
SUITE 900  
MORRISVILLE, NC 27560-  
Attn: LISA SNIPES

PROJECT NAME: TRIANGLE 963761  
REPORT DATE: 12/06/96

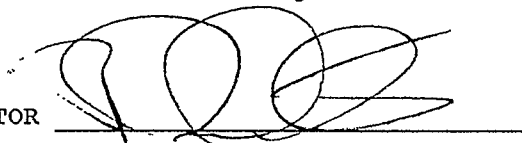
SAMPLE NUMBER- 95228 SAMPLE ID- TRIANGLE BDRW-2  
DATE SAMPLED- 12/03/96  
DATE RECEIVED- 12/04/96 SAMPLER- JD BELL  
TIME RECEIVED- 1000 DELIVERED BY- FED EX

SAMPLE MATRIX- WW  
TIME SAMPLED- 1625  
RECEIVED BY- DHT

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS		RESULT UNITS	DET.
		DATE	BY		LIMIT
NITRATE	EPA 352.1	12/05/96	APT	13.69 mg/l	0.10

LABORATORY DIRECTOR



# HYDROLOGIC, INC.

---

## FINAL REPORT OF ANALYSES

HYDROLOGIC MORRISVILLE  
2500 GATEWAY CENTRE BOULV  
SUITE 900  
MORRISVILLE, NC 27560-  
Attn: LISA SNIPES

PROJECT NAME: TRIANGLE 963761  
REPORT DATE: 12/06/96

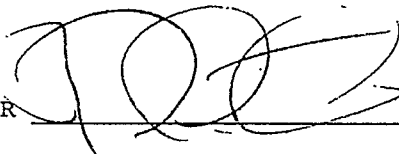
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DATE SAMPLED- 12/03/96  
DATE RECEIVED- 12/04/96 SAMPLER- JD BELL  
TIME RECEIVED- 1000 DELIVERED BY- FED EX

SAMPLE MATRIX- WW  
TIME SAMPLED- 1630  
RECEIVED BY- DHT

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS		RESULT UNITS	DET.
		DATE	BY		LIMIT
NITRATE	EPA 352.1	12/05/96	APT	17.38 mg/l	0.10

LABORATORY DIRECTOR



# HYDROLOGIC, INC.

---

## FINAL REPORT OF ANALYSES

HYDROLOGIC MORRISVILLE  
2500 GATEWAY CENTRE BOULV  
SUITE 900  
MORRISVILLE, NC 27560-  
Attn: LISA SNIPES

PROJECT NAME: TRIANGLE 963761  
REPORT DATE: 12/06/96

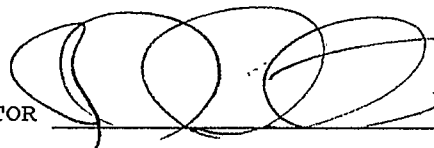
SAMPLE NUMBER- 95230 SAMPLE ID- TRIANGLE AMW-1  
DATE SAMPLED- 12/03/96  
DATE RECEIVED- 12/04/96 SAMPLER- JD BELL  
TIME RECEIVED- 1000 DELIVERED BY- FED EX

SAMPLE MATRIX- WW  
TIME SAMPLED- 1710  
RECEIVED BY- DHT

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS		RESULT UNITS	DET.
		DATE	BY		LIMIT
NITRATE	EPA 352.1	12/05/96	APT	0.98 mg/l	0.10

LABORATORY DIRECTOR





# HYDROLOGIC, INC.

---

## FINAL REPORT OF ANALYSES

HYDROLOGIC MORRISVILLE  
2500 GATEWAY CENTRE BOULV  
SUITE 900  
MORRISVILLE, NC 27560-  
Attn: LISA SNIPES

PROJECT NAME: TRIANGLE 963761  
REPORT DATE: 12/06/96

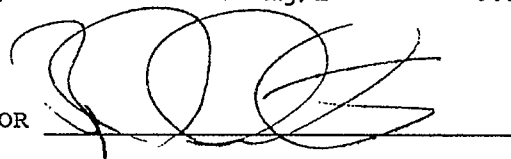
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DATE SAMPLED- 12/03/96  
DATE RECEIVED- 12/04/96 SAMPLER- JD BELL  
TIME RECEIVED- 1000 DELIVERED BY- FED EX

SAMPLE MATRIX- WW  
TIME SAMPLED- 1720  
RECEIVED BY- DHT

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS		RESULT UNITS	DET.
		DATE	BY		LIMIT
NITRATE	EPA 352.1	12/05/96	APT	6.45 mg/l	0.10

LABORATORY DIRECTOR



## Chain of Custody Record

## HYDROLOGIC, INC.

Page 1 of 4

<input type="checkbox"/> 122 Lyman Street Asheville, NC 28801 (704) 254-5169 FAX (704) 252-9711	<input type="checkbox"/> 410 New Salem Highway #106 Murfreesboro, TN 37129 (615) 848-6810 FAX (615) 848-6805	<input type="checkbox"/> 1491 Twilight Trail Frankfort, KY 40601 (502) 223-0251 FAX (502) 875-8016	<input type="checkbox"/> 2003 North Pine Street Lumberton, NC 28358 (910) 738-6190 FAX (910) 671-8837	<input type="checkbox"/> I-85 S Bldg. 2848 Charlotte, NC 28208 (704) 392-1164 FAX (704) 392-9073	<input checked="" type="checkbox"/> 2500 Gateway Centre Morrisville, NC 27560 (919) 380-9699 FAX (919) 380-9717	<input type="checkbox"/> 4875 Riverside Drive Macon, GA 31210 (912) 757-0811 FAX (912) 757-0149	<input type="checkbox"/> 695 N Seventh Ave Brighton, CO. 80601 (303) 659-0497 FAX (303) 659-5064
--	---	---	--	---	--	--	---

Client: J DENNIS BEN Project No.: 01-034-2409

Report Address: PO Box 4087 Invoice Address: SAME

RALEIGH, NC 27629

Attn: JDBell Attn: JDBell

Phone No.: 876-5115 Sampled By: JDBell

Fax No.: 876-790-8273 P.O. No: BELL

State Samples Collected

TURNAROUND TIME

☐ 24 Hours ☐ 48 Hours

☐ 5 Days ☐ 10 Days Date Needed: \_\_\_\_\_

REQUESTED PARAMETERS

NITRATE

96-3761

LAB CODE I.D.

Asheville, NC

Charlotte, NC

Denver, CO

Macon, GA

Frankfort, KY

Lumberton, NC

Morrisville, NC

Subcontracted

Murfreesboro, TN

Sample ID	Date	Time	Comp/Grab	Matrix	Containers	← Preserv.	REMARKS
MW-5	12/3/96	405p	G	GW	1	X	
MW-4		415				X	
BDMW-4		420				X	
BDRW-7		425				X	
BDRW-1		430				X	
AMW-1		510				X	
AMW-6		520				X	

(Not preserved)

NOT TRUST FUND

Lab Use Only

Custody Seal: ☐ Yes ☐ No ☐ N/A

Init Lab Temp

Rec Lab Temp

COMMENTS:

Relinquished By: JDBell Date: 12/3/96 Time: 1530pm

Relinquished By: JDBell Date: 12/3/96 Time: 1830p

Relinquished By: Date: Time:

Relinquished By: Date: Time:

Received By: JDBell Date: 12/3/96 Time: 530p

Received By: JDBell Date: 12/4/96 Time: 1000

Received By: Date: Time:

Received By: Date: Time:

# STATE OF NORTH CAROLINA

Department of Environment and Natural Resources

Raleigh Regional Office

3800 Barrett Drive, Suite 101, Raleigh, NC 27609

919/571-4700

## File Access Record

SECTION

UST/GW

TIME/DATE

Tuesday, April 27, 1999

NAME

John Sherrill

REPRESENTING

Sherrill Environmental

(919) 420-7822

**Guidelines for Access:** The staff of the Raleigh Regional Office is dedicated to making public records in our custody readily available to the public for review and copying. We also have the responsibility to the public to safeguard these records and to carry out our day-to-day program obligations. Please read carefully the following guidelines before signing the form:

1. We prefer that you call at least a day in advance to schedule an appointment to review the files. Appointments will be scheduled between 9:00 a.m. and 3:00 p.m. Viewing time ends at 5:00 p.m. Anyone arriving without an appointment may view the files to the extent that time and staff supervision is available.
2. You must specify files you want to review by facility name. The number of files that you may review at one time will be limited to five.
3. You may make copies of a file when the copier is not in use by the staff and if time permits. Cost per copy is 10 cents for ALL copies if you make more than 25 copies - there is no charge for less than 25 copies; payment may be made by check, money order, or cash at the reception desk. You can also be invoiced.
4. FILES MUST BE KEPT IN THE ORDER YOU FOUND THEM. Files may not be taken from the office. To remove, alter, deface, mutilate, or destroy material in one of these files is a misdemeanor for which you can be fined up to \$500.00.
5. In accordance with General Statute 25-3-512, a \$20.00 processing fee will be charged and collected for checks on which payment has been refused.

### FACILITY NAME

### COUNTY

- |    |          |        |
|----|----------|--------|
| 1. | Loxcreen | Person |
| 2. | _____    | _____  |
| 3. | _____    | _____  |
| 4. | _____    | _____  |
| 5. | _____    | _____  |

*John Sherrill* - Sherrill Environmental, Inc

Signature and Name of Firm/Business

Date

Time In

Time Out

Please attach a business card to this form

4/27/99

9:15

10:50